

Beyond labels: Using green bonds to support investors' climate-related objectives

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Rupert Cadbury
Sustainable Investing Strategist

For some investors, green bonds represent an important component of their climate-thematic investment strategies. This paper explores the rapid growth and increasing relevance of labeled bonds—particularly green bonds—as instruments designed to provide transparency and traceability of capital allocation to eligible climate-related projects. The analysis examines market trends, allocation and impact reporting, and the use of frameworks like the International Capital Market Association (ICMA) allocation categories, EU Taxonomy, and Sustainable Development Goals (SDGs) to assess sustainability outcomes.

While these frameworks provide important transparency on how proceeds are used and reported, the paper also examines the structural limitations of relying on labeled bonds alone within a benchmark-aware portfolio—and how investors might combine green bonds with the broader universe of transition-aligned issuers to build diversified, climate-thematic portfolios.

Climate transition made investable—what are labeled bonds?

According to recent research, labeled bonds can support sustainability-related objectives.¹ Green bonds are the largest part (58%²) of the global labeled bond universe—other labels include social, sustainable, climate transition, and sustainability-linked bonds, which are aligned with the ICMA Principles for labeled instruments.

Green bonds have gathered particular attention from climate-thematic investors given their proceeds are earmarked for projects with environmental benefits, such as renewable energy, energy efficiency, and climate adaptation. Their use of proceeds (UoP) structure provides a mechanism for transparency and accountability, enabling investors to align capital with sustainability commitments.

From an investment perspective, green bonds offer several key characteristics, including:

- **Comparable risk-return profile** When comparing a green bond with a conventional bond from the same issuer with the same currency, maturity and coupon rate, the green bond tends to show similar credit risk and yield characteristics to the conventional bond, making it an efficient way to integrate sustainability-related goals without altering the financial investment objective.³
- **Broader investable universe and issuer exposure** The green bond market has grown substantially since the inauguration of the labeled bond market in July 2007 by the European Investment Bank (EIB), supported by strong issuance from other supranational bond issuers, sovereigns, and corporate borrowers, increasing the range of benchmark-eligible securities available to fixed income investors (Figure 1).

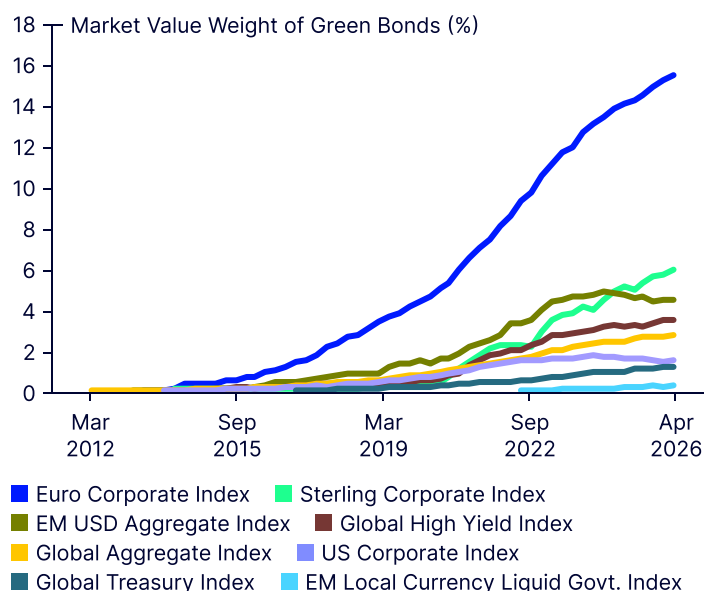
- **Sustainable outcome alignment** Green bonds enable investors to allocate capital to projects with intended environmental benefit, while recognizing that reported figures generally reflect the impact of financed projects rather than outcomes attributable to any single investor.⁴

Over the past decade, regulators and supervisors have focused increasingly on climate-related financial risk⁵ and related disclosure information while investor demand for positive sustainable outcome investing strategies⁶ and decision-useful information has grown. In parallel, green bonds continue to dominate labeled sustainable debt issuance, reinforcing their core role in the sustainable debt market.

Market overview: A small but rapidly growing market

Labeled debt instruments have gained a significant share in certain parts of the fixed income market. While there may be some differences between data providers in identifying what qualifies as a green-labeled bond, the European green bond market—the largest green bond market globally—has grown to around 15% of the euro investment grade (IG) corporate bond market since 2013 (Figure 1).⁷

Figure 1: Green bonds have grown in proportion to broad fixed income markets



Source: Bloomberg. Data as at 30 April 2026.

Green bonds as a financing tool for climate-aligned investment

To qualify a bond issue as green under the ICMA Green Bond Principles, the issuer must establish a green bond framework that defines project eligibility criteria, how projects are selected, how outstanding proceeds will be managed and reported, and their contribution to positive sustainable outcomes.⁸

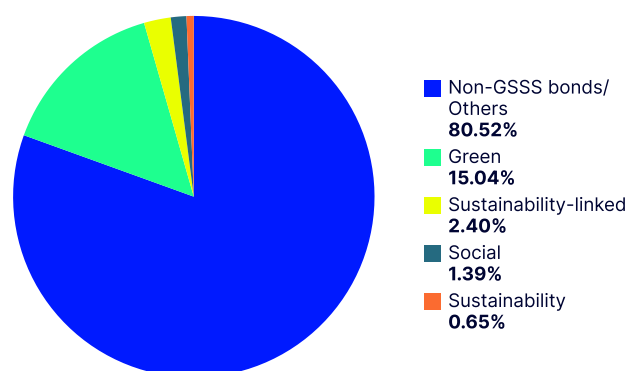
For example, Ørsted, a Danish energy company, issued green bonds as part of a broader financing plan supporting its transition toward renewable energy generation.⁹ Industry peers including EDF, Enel, and Iberdrola have done the same, with labeled green issuances contributing to the financing of activities aligned with their interim 2030 emissions-reduction objectives.¹⁰ Within the transportation sector, Maersk issued green bonds to support investment in energy efficiency measures and replacement of older fossil-fuel-powered vessels with dual-fuel ships capable of sailing on green methanol and other low-carbon alternatives.¹¹

Improved availability and standardization of issuer data has enhanced investors' ability to assess allocation and reporting practices, providing the foundation for the market analysis presented in the following sections.

Understanding the structure of the labeled bond market

Figure 2 provides an overview of the bond classification of the euro IG corporate bond market, showing the relative representation of conventional bonds and labeled use-of-proceeds instruments. This context helps frame the subsequent discussion of allocation reporting and project categories within green, social, and sustainability bonds.

Figure 2: Euro IG corporate bond market composition: Labeled vs conventional bonds



Source: State Street Investment Management, LGX DataHub, Luxembourg Stock Exchange. Analysis based on the Bloomberg Euro Corporate Bond Index. Data as at 30 April 2026.

Allocation of proceeds: What labeled bonds finance

Figure 3 illustrates the allocation of euro investment-grade corporate bonds across the ICMA-defined project categories, based on reported UoP. Allocation reporting is one of the core requirements of the ICMA Principles.

Within the overall market, the largest allocations to green bond project categories (as a share of the total index) are green buildings (4.19%), renewable energy (3.56%), and clean transportation (1.35%).

Interpreting allocation metrics: ‘% invested’ explained

The two “% invested” columns in Figure 3 are calculated on different bases. The first shows each category as a share of the total portfolio (i.e., the allocation across the combined labeled and conventional bond market weighted by issue size), while the second shows each category as a share of only the labeled bond allocation within that portfolio.

For example, renewable energy represents 3.56% of the total portfolio. However, if the analysis is limited to the portion of the portfolio invested in labeled bonds, renewable energy accounts for 26.71% of that allocation. On this basis, green buildings (31.43%), renewable energy (26.71%), and clean transportation (10.11%) represent the largest allocations within the labeled bond segment.

For social bonds, allocations are reported against analogous social categories, such as affordable housing and access to essential services. Sustainability bonds combine both green and social project categories.

Figure 3: Allocation by ICMA project categories of the Euro IG corporate bond market

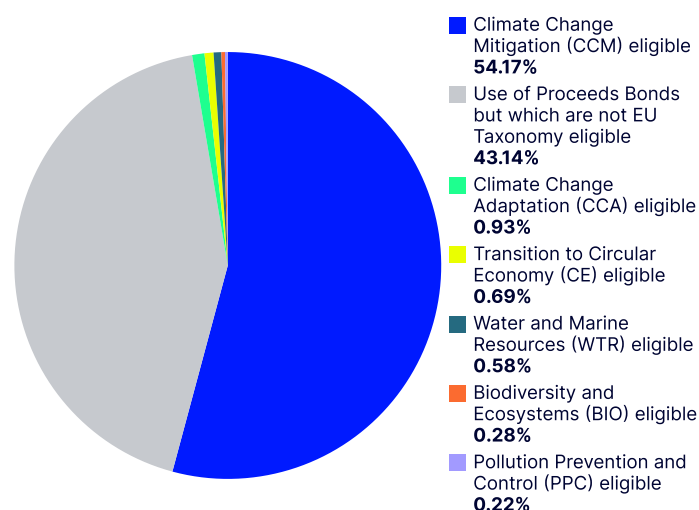
	No. of bonds	% invested (of total portfolio)	% invested (of total allocated to use-of-proceeds bonds)
ICMA Project Categories	589	13.34	100.00
Environmental			
Renewable energy	320	3.56	26.71
Energy efficiency	186	1.28	9.56
Pollution prevention and control	86	0.29	2.20
Natural resources and land use	69	0.21	1.54
Biodiversity conservation	17	0.03	0.24
Clean transportation	180	1.35	10.11
Water and wastewater	64	0.24	1.84
Climate change adaptation	7	0.03	0.25
Eco-efficient products and processes	67	0.53	3.94
Green buildings	293	4.19	31.43
Social			
Affordable basic infrastructure	10	0.05	0.39
Access to essential services	33	0.28	2.07
Affordable housing	25	0.20	1.48
Employment generation	8	0.10	0.78
Food security	2	0.00	0.01
Socio-economic advancements	44	0.56	4.20
Other	10	0.04	0.26
Not yet allocated (or could not be estimated)	58	0.40	2.98
Not applicable (SLBs or data not available)	3,474	86.66	—
Total portfolio	4,063	100.00	

Source: State Street Investment Management, LGX DataHub, Luxembourg Stock Exchange. Data as at 30 April 2026. Please note that an individual bond may be associated with more than one ICMA Project Category, so the numbers shown for the individual categories will not add up to the overall number of bonds.

Figure 4 illustrates the eligibility of reported use-of-proceeds allocations according to the EU Taxonomy environmental objectives, providing a supplementary classification lens to the ICMA project categories. It is intended to help investors identify sustainable activities, and can serve as a tool to reduce greenwashing risks by employing a data-driven, scientific approach.

However, the EU Green Bond Standards (EuGBS)¹² are voluntary and the proportion of UoP reporting as being aligned with the EU Taxonomy at the time of conducting this research remains very low compared to the full universe of labeled bonds. Under the EU Taxonomy, not all business sectors are currently included in the Taxonomy, and an activity is considered environmentally sustainable—or “Aligned” with the EU Taxonomy—if it makes a substantial contribution to one of six environmental objectives and if it does not significantly harm any of the others. In addition, the rules require issuers of bonds aligned to the EuGBS to provide granular reporting data and meet comprehensive screening criteria, which may be deemed too challenging for some labeled bond issuers.

Figure 4: Eligibility of use of proceeds allocations with EU Taxonomy environmental objectives



Source: State Street Investment Management, LGX DataHub, Luxembourg Stock Exchange. Data as at 30 April 2026. These figures are indicative and subject to change.

From allocation to reporting: Interpreting impact reporting in labeled bonds

While allocation reporting explains how bond proceeds are used, impact reporting seeks to describe the outputs and outcomes associated with those activities. In the context of labeled bond markets, the term “impact” is commonly used to refer to issuer-reported output and outcome indicators associated with the use of bond proceeds under the ICMA Harmonized Frameworks for Green and Social Bonds, rather than to denote impact investing as an investment objective or impact measurement as in a Theory of Change framework.

These indicators are typically derived from issuer frameworks and post-issuance reports and may be re-structured, aggregated, and pro-rated by data vendors for portfolio reporting. As a result, reported figures reflect a combination of issuer disclosures and analytical adjustments required to align data across issuers and instruments.

It’s important for investors to distinguish between reported outputs and broader notions of real-world outcomes. Impact reporting in this context provides indicative measures associated with financed activities, rather than verified measures of outcomes that can be directly attributed to an investor or used as evidence of impact investing.

Reported impact metrics and data availability

Within the context set out in the previous section, impact reporting is typically available for labeled bonds from 12–18 months after issuance. Specialist data providers, such as LGX DataHub, collect impact reporting data from post-issuance reports and apply methodologies to enable comparability across portfolios.

Where issuers do not provide impact metrics on a pro-rated basis, data providers may apply conservative assumptions or coefficients to estimate the share of outcomes attributable to a given bond. In addition, where no reported data is available, estimated values may be derived using proxy approaches based on comparable instruments. As a result, portfolio-level metrics may include a combination of reported and estimated data points.

Illustrative examples of impact reporting metrics

Issuer-reported impact metrics, developed in line with ICMA frameworks, provide a structured view of outputs associated with financed activities. Broader frameworks such as the United Nations Sustainable Development Goals (SDGs) offer a complementary perspective for assessing the alignment of these activities with global sustainability objectives. These approaches can be used together to provide additional context on the reported outcomes associated with labeled bond investments.

Figure 5 provides an example of selected ICMA-aligned impact reporting metrics of a euro IG portfolio derived from issuer-reported and vendor-estimated data.

Of the euro IG corporate bonds in the market, according to our analysis using data from LGX DataHub, 90.7%¹³ of those identified as labeled bonds have some form of reported or estimated impact reporting metric coverage which is either reported by the issuer or estimated by LGX DataHub.

Figure 5: Selected ICMA-aligned impact reporting metrics derived from post-issuance disclosures

	Portfolio value (Absolute)	Per EUR million invested
Annual GHG Emissions Avoided (tCO ₂ -e)	82,776	86.66
Capacity of Renewable Energy Plants Constructed/Rehabilitated (MW)	65	0.07
Annual Renewable Energy Generation (GWh)	64	0.07
Annual Energy Savings (GWh)	33	0.03
Annual Amount of Waste Prevented/Minimized/Recycled (tonnes)	238	0.24
Number of Clean Vehicles Deployed (#)	1,449	1.45
Annual Water Savings (m ³)	14,088	14.09
Number of Jobs Created/Retained (#)	37	0.04
Number of Loans (#)	82	0.08
Number of People Benefitted (#)	1,746	1.75

Source: State Street Investment Management, based on LGX DataHub, Luxembourg Stock Exchange. Data as at 30 April 2026. The information is for illustrative purposes. The investment universe is based on a hypothetical EUR 1 billion portfolio fully replicating the Bloomberg Euro Corporate Bond Index.

In this example, reported and estimated ICMA-aligned impact reporting metrics indicate that the financed activities are linked to a range of environmental and social outputs, including renewable energy generation, energy savings, and emissions-related indicators. For instance, the data suggests investments facilitated through the issuance of these bonds is associated with approximately 86.66 tCO₂-e of annual greenhouse gas emissions reduced or avoided per EUR million invested.¹⁴

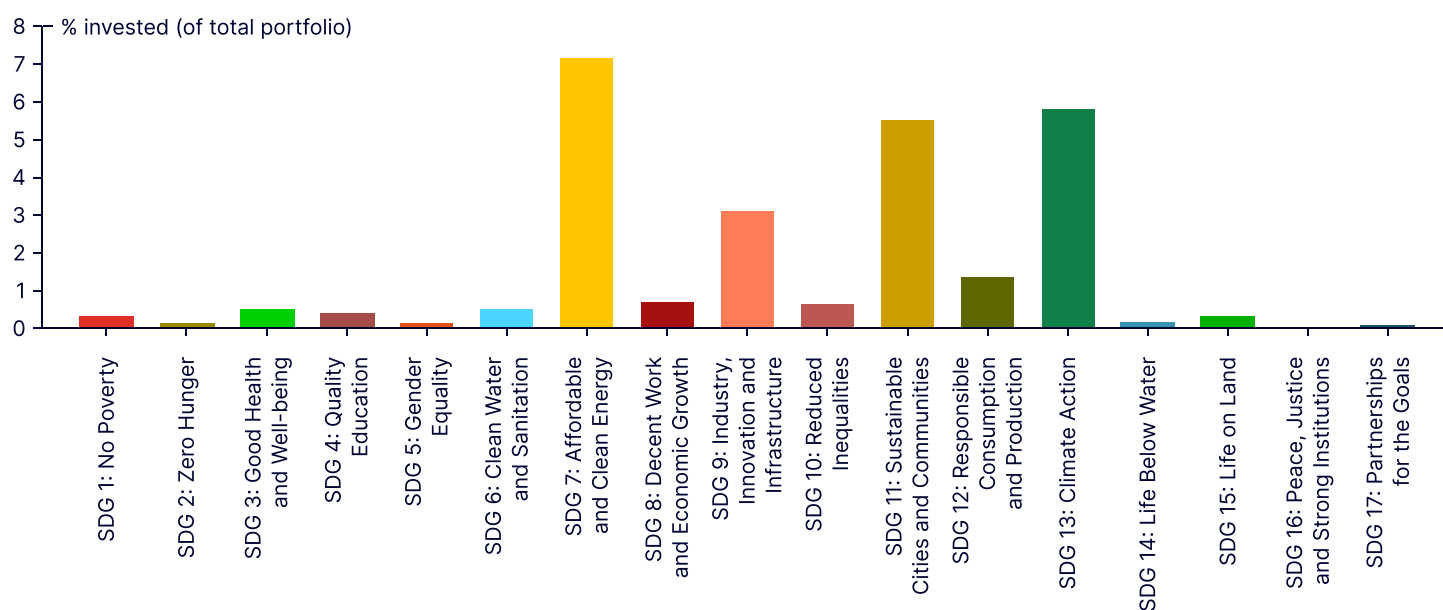
For illustrative context only, this level of reported emissions reduction or avoidance is broadly comparable to the annual estimated emissions of approximately 65 cars in the EU.¹⁵ Similarly, the reported renewable energy generation of 0.07 GWh per EUR million invested is broadly comparable to the estimated annual electricity consumption of 18 EU-based dwellings.^{16,17}

In addition to ICMA-aligned metrics, investors may also interpret these outcomes through broader sustainability frameworks such as SDGs.

SDG mapping allows investors to compare sustainability objectives (e.g., climate action, gender equality, clean water) across asset classes and geographies. It's important to note however that if a project contributes to multiple SDGs, the full allocated amount is counted toward each relevant SDG. In other words, double-counting is possible.

For example, a typical market-weighted euro IG portfolio is more aligned with SDGs 7, 11, and 13 than other SDGs, reflecting a focus on clean energy, sustainable cities, and climate action (Figure 6).

Figure 6: SDG contribution for a Euro IG corporate market weighted strategy



Source: State Street Investment Management, LGX DataHub, Luxembourg Stock Exchange. Data as at 30 April 2026.

Investment considerations and market constraints

While allocation and impact reporting provide important transparency on the use and outcomes of labeled bond proceeds, there remain structural limitations in relying on labeled bonds alone from a portfolio construction perspective. These include the more limited secondary-market liquidity of some labeled issues, pricing differences relative to conventional bonds (the “greenium”), individual issue sizes that may fall below index or benchmark thresholds, narrower currency coverage, and a more limited range of maturities, which together can make it difficult to build a diversified, benchmark-aware portfolio from labeled bonds alone.

Investors may note that, while the default risk of an individual labeled bond is similar to that of a conventional bond from the same issuer, other risk characteristics may differ (e.g., currency risk, maturity risk and liquidity risk) and, therefore, in aggregate, the expected return profiles of a pure labeled bond market allocation (e.g. Bloomberg Global Aggregate Green Social Sustainability Bond Index) can differ versus a typical broad market exposure that includes conventional as well as labeled bonds (e.g. Bloomberg Global Aggregate Index). As a result, a purely labeled bond exposure may not be sufficient for investors seeking both climate alignment and benchmark-aware portfolio construction.

In response to these constraints, investors may consider a range of approaches when constructing climate-aware bond portfolios, rather than limiting consideration solely to qualifying labeled bonds.

Practical steps to build climate-aware bond portfolios

For those investors seeking to use their capital to support the transition to a lower carbon economy, attaining green bond exposure via primary market issuance may represent an effective approach to financing eligible climate-related activities.

It’s important to note that not all climate-relevant investments are captured by labeled instruments. Bonds issued by companies actively transitioning toward lower-carbon business models may also contribute to climate-thematic objectives, even where the bonds are not formally labeled according to one of the ICMA labeled bond categories.

Because labeled bonds make up only a relatively small share of the investable universe (Figure 1), a portfolio constructed solely from such instruments may differ materially from a broad market benchmark in terms of risk, return, and diversification characteristics. Therefore, investors may consider a broader set of approaches to construct climate-thematic bond portfolios, including:

- Investing in qualifying green-labeled bonds, such as those aligned with recognized frameworks (e.g., the Climate Bonds Initiative Taxonomy)
- Identifying conventional bonds issued by companies aligned or progressing in their transition to net zero

This broader investment framework underpins approaches that seek to balance climate-thematic objectives with portfolio efficiency.

Endnotes

- 1 Caldecott, B., Clark, A., Harnett, E. et al. How sustainable finance creates impact: transmission mechanisms to the real economy. *Rev World Econ* 162, 87–119 (2026).
- 2 Sourced from Luxembourg Green Exchange (LGX) as at 24 November 2025.
- 3 Pietsch, A. and Salakhova, D. (2022) Pricing of green bonds: drivers and dynamics of the greenium. ECB Working Paper Series, No. 2728. Frankfurt am Main: European Central Bank.
- 4 Green Bond Principles, International Capital Market Association (2025).
- 5 For example, the EU Commission proposed a regulation to legally enshrine the objective of climate neutrality by 2050 (see European Climate Law—Climate Action—European Commission) and many other jurisdictions have taken similar measures as well.
- 6 Global Sustainable Investment Review 2024, Global Sustainable Investment Alliance (GSIA), (2025).
- 7 Source: Luxembourg Green Exchange (LGX) as at 30 April 2026.
- 8 Green Bond Principles, ICMA (2025).
- 9 Ørsted A/S (2025) Green Finance Framework 2025. Fredericia: Ørsted A/S. Available at: Ørsted Green Finance Framework 2025 (Accessed: 2 September 2026).
- 10 Tuhkanen, H., & Vulturius, G. (2022). Are green bonds funding the transition? Investigating the link between companies' climate targets and green debt financing. *Journal of Sustainable Finance & Investment*, 12(4), 1194–1216.
- 11 A.P. Moller - Maersk (2021) Maersk issues first green bond to fund first green methanol vessels. Available at: Maersk issues first green bond to fund first green methanol vessels (Accessed: 2 September 2026).
- 12 The EU Green Bond Standards (EuGBS) regulation officially came into application on December 21, 2024, after entering into force on December 21, 2023. The application date is the point at which issuers could officially issue compliant European Green Bonds.
- 13 State Street Investment Management, LGX DataHub, Luxembourg Stock Exchange. As at 30 April 2026. Impact data includes reported, but also extrapolated and estimated data if the options were activated before generating the report. Information is for indicative purposes only.
- 14 These figures are presented to provide context and should be interpreted with caution. The underlying metrics are dependent on issuer methodologies, baseline assumptions, and estimation techniques applied by data providers. They do not represent realized outcomes attributable to an investor, nor do they constitute evidence of additional environmental or social impact resulting from secondary market investment activity.
- 15 Source: State Street Investment Management. The car equivalence is calculated by State Street from three inputs: (i) annual GHG emissions avoided of 86.66 tCO₂-e per EUR million invested, as shown in Figure 5, calculated by State Street using LGX DataHub, Luxembourg Stock Exchange data; (ii) average CO₂ emissions of new cars in the EU of 106.7gCO₂/km in 2024 (CO₂ emissions performance of new passenger cars in Europe | Indicators | European Environment Agency (EEA), published 3 August 2026); (iii) average annual distance traveled per car in the EU of 12,540km in 2022 (Vehicles on European Roads, ACEA, 2024). One average car is estimated to emit approximately 1.34 tonnes of CO₂ per year (106.7 g/km × 12,540 km), giving an equivalence of approximately 65 cars per EUR million invested. Figures are estimates provided for illustrative context only and do not represent real-world outcomes attributable to an investment.
- 16 Source: LGX DataHub, Luxembourg Stock Exchange. For the purposes of the calculation the average annual electricity consumption per dwelling among EU Member States is 3.7MWh (see Electricity consumption per dwelling | Electricity dwelling | ODYSSEE-MURE). These illustrative equivalences are provided solely to aid interpretation of scale and should not be construed as measures of investment impact, investor contribution, or additionality.
- 17 Impact figures are provided for informational purposes only and are estimated using a combination of issuer -reported data and conservative estimation/proxy approaches applied by the LGX DataHub. A portion of the underlying data may be estimated or extrapolated. "Cars" and "dwellings/electricity consumption" comparisons are non-investment, non-product illustrative equivalencies used to aid understanding of scale; they do not evidence real-world outcomes caused by the portfolio or represent actual emissions reductions in the transport or residential sectors. Estimates may not be comparable across issuers, time periods, or methodologies, are subject to change, and there is no guarantee that any projected or estimated impact will be realized.

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* This figure is presented as of June 30, 2026 and includes ETF AUM of \$2,203.98 billion USD of which approximately \$156.81 billion USD in gold assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Investment Management are affiliated. Please note all AUM is unaudited.

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