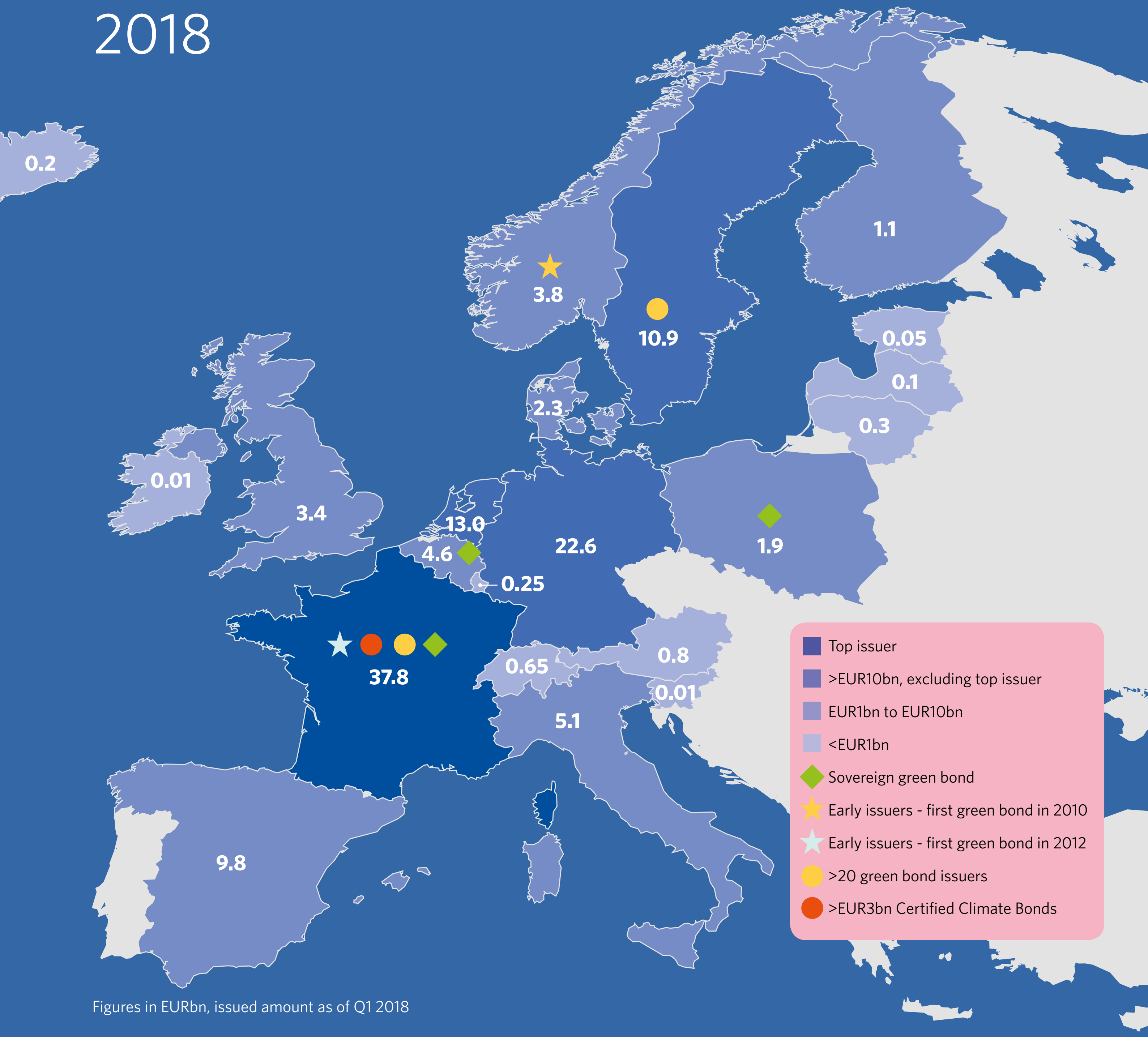
THE GREEN BOND MARKET IN EUROPE

2018



Figures in EURbn, issued amount as of Q1 2018

Climate Bonds INITIATIVE

WHITE & CASE

Prepared by the Climate Bonds Initiative

Sponsored by White & Case

Europe overview

Cumulative green bond issuance since 2007: EUR122bn; 144 issuers; largest regional market
2017 green bond issuance: EUR52bn, 1.4x 2016 volume; 80 issuers, of which 48 new entrants
Global FIRSTS: sovereign, sub-sovereign and corporate GB issuers; green bonds to finance property, wind and forestry; green bond segment on stock exchange

Europe at the forefront of green bond issuance

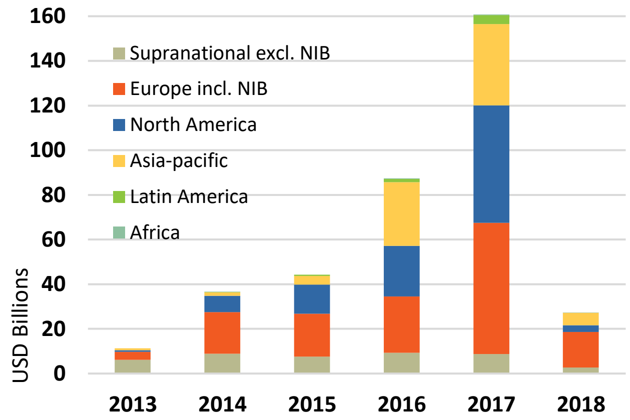
Global green bond issuance started with multi-lateral development banks raising funding for climate-related projects in 2007/08. European issuers were the first to enter the nascent green bond market. Global firsts include:

Global First	Issuer	Year
Green bond issuer	European Investment Bank*	2007
Public sector issuer	Kommunalbanken Norway	2010
Local government issuer	Île-de-France, France	2012
City issuer	City of Gothenburg, Sweden	2013
Corporate & property issuer	Vasakronan, Sweden	2013
Certified Climate Bond	Belectric Solar, UK	2014
Green covered bond	BerlinHyp, Germany	2015
Green MTN programme	Fabege, Sweden	2016
Sovereign issuer	Poland	2016

** EIB is a supranational and is not included in country figures.*

The first stock exchanges to create dedicated green bond lists were Oslo, Stockholm and London. Luxembourg is home to the first green exchange. European banks are active underwriters. European asset managers have created dedicated green bond funds. This provides visibility, focuses investment decisions and helps market growth.

European issuance: 37% of global total**



*** Total global issuance (2007 - Q1 2018): USD377bn*
European issuance since 2010, i.e. first European issue: USD141bn

Region	GB markets	Issuers	Issued (USD)
Europe incl. NIB	21	144	141bn
N America	3	135	99bn
Asia-Pacific	14	127	77bn
Other excl. NIB	9 + SNAT	46	60bn

Source: Climate Bonds Initiative. All graphs as of 31st March 2018.

This report looks at the evolution of the European green bond market. It is sponsored by White & Case.

Part 1: Europe overview

- Green bond deal features, including overview of issuer and bond types, external reviews and certification
- Use of proceeds analysis
- The role of government
- The role of financial institutions

Part 2: Country and regional reviews

- Analysis: France, Germany, Netherlands, Spain, Italy, the UK
- Review: Belgium, Luxembourg, Ireland, Austria, Switzerland
- Nordics highlights: Denmark, Finland, Iceland, Norway, Sweden
- CEE review: Poland, Latvia, Lithuania, Estonia, Slovenia

Understanding green bonds

Green bonds

Green bonds are issued in order to raise finance for climate change solutions. They can be issued by governments, banks, municipalities or corporations.

The green bond label can be applied to any debt format, including private placement, securitisation, covered bond, sukuk. Labelled green loans are an option if they comply with the ICMA Green Bond Principles or the LMA Green Loan Principles. The key is for the proceeds to go to "green" assets.

Green definitions

The concept of *"green"* differs around the world. The Climate Bonds Initiative uses the Climate Bonds Taxonomy, which features eight categories: energy, buildings, transport, water, waste / pollution control, land use, industry and ICT.[A] CBI has published ten sector criteria under the Climate Bonds Standard and three are or will soon be available for public consultation.[B] More are due to be put out for public consultation shortly. Issuers can certify their bonds or loans according to the Climate Bonds Standard and Sector Criteria.[C] The stringent verification process ensures that the use of proceeds complies with the objective of capping global warming at 2°C.

Inclusion in the CBI green bond database

Only bonds with at least 95% proceeds dedicated to green assets and projects that are aligned with the Climate Bonds Taxonomy are included in our green bond database and figures. For example, sustainability bonds with a wider use of proceeds or bonds which fund large amounts of working capital would be excluded.

If issuers do not provide sufficient information on the use of proceeds, the bonds are tagged as "pending". If and when satisfactory additional information becomes available, we may include them in the green bonds database.

Europe overview

Green bond deal features

The European green bond market is diverse

European issuers span the continent and the spectrum of issuer types. They have issued in a variety of debt formats, currencies and tenors. Sector diversity has grown over time. 98% of issuance benefits from external reviews and reporting standards are high.

Europe boasts 145 green bond issuers

145 entities have issued green bonds in Europe: that's a third of the global total. The 7 debut issuers from 2018 and 48 from 2017 have already contributed over EUR34bn to the market: half of that is linked to sovereign issues from France and Belgium (see table).

Issuers include 48 companies in the energy sector, 35 financial institutions, 23 property companies, 17 local governments and three sovereigns. Diversification to date is a big accomplishment but it would be good to see more corporate issuance, especially from countries with large economies and highly-developed and active bond markets such as the UK, Germany and France.

Non-financial corporates have contributed a third of green bond issuance to date. However, the top 10 issuers are from just two sectors: energy (Iberdrola, Engie, TenneT Holdings, Enel, Innogy, Nordex, Gas Natural Fenosa, Senvion) and property (Unibail-Rodamco, Vasakronan). As the market grows, we would expect to see more issuers from other sectors.

Financial institutions account for a quarter of cumulative issuance. The most prolific among them – with 100 green bonds – is Credit Agricole CIB (France). The largest issuer as of the cut-off date was BerlinHyp (Germany), and it increased its lead with a fifth EUR500m green bond closed in April. The category includes 20 commercial banks and four development banks. KfW (Germany) is the most active and largest issuer among the latter.

Government-backed entities, local government and sovereigns account for around 40% of cumulative issuance. Poland was the first sovereign to issue a green bond. France's Green OAT holds the record for largest green bond globally. Swedish local governments have been particularly active with many repeat issuers, but are surpassed slightly by French issuers in terms of overall volume.

However, local and central government, taken together, account for less than the volume placed by government-backed entities. Over a fifth of total issuance comes from state- and municipality-owned entities, a category that includes primarily financial institutions, energy, rail and property companies.

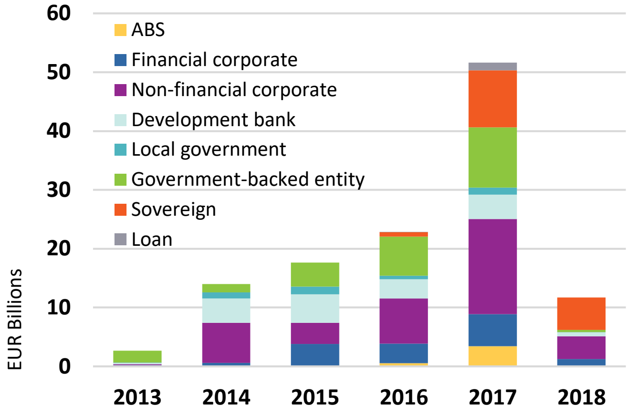
ABS issuance comprises two Green RMBS under Obvion's Green Storm programme and a synthetic ABS from Credit Agricole, which transferred the credit risk from the French bank to a US investor to free up capacity for further green lending.

Tenors up to 10 years dominate

About 70% of European green bond issues have a tenor of ten years or less: 28% have tenors up to 5 years and 41% between 5 and 10. Both public and private non-financial corporates tend to finance themselves with medium- to long-term debt (5-10Y to perpetual). By contrast, financial institutions have issued mostly shorter-dated bonds (up to 5Y). Sovereigns have by far the greatest appetite for long-dated bonds (15Y and above).

Longer dated debt is particularly suitable for the development and operation of infrastructure assets and there is strong institutional investor demand for such bonds.

Non-financial corporates generated a third of volume

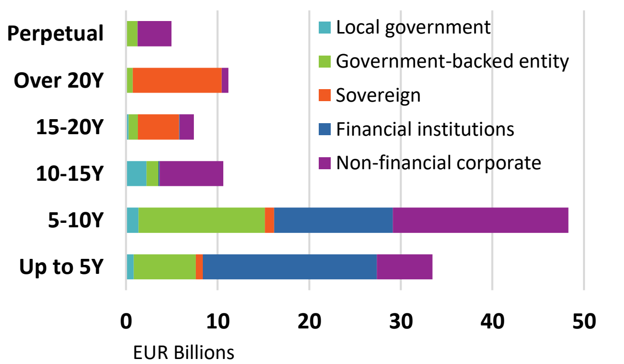


Methodology note: The European Investment Bank was the first green bond issuer and is headquartered in Luxembourg. However, we treat supranationals as distinct from countries and do not include them in country issuance figures. The Nordic Investment Bank, however, is included: even though it is also a supranational, information received from NIB shows that all green bond proceeds are invested in Northern European countries.

New issuers make big contributions

Region	Country	2017	Issued (EUR m)	Q1 2018	Issued (EUR m)
	France	6	11,823	1	100
	Italy	5	4,176		
	Germany	5	2,530		
	UK	4	1,876		
	Spain	3	1,620		
	Switzerland	3	766		
	Belgium			2	4,600
	Austria	1	300		
Nordics	Sweden	10	2,506	2	150
	Norway	4	259	1	1,000
	Denmark	2	1,750		
	Iceland			1	163
	Finland	1	100		
CEE	Lithuania	1	300		
	Poland	1	137		
	Latvia	1	20		
	Slovenia	1	14		
Total		48	28,177	7	6,012

70% of issuance has 10Y or shorter tenor



*Methodology notes: **1.** This analysis excludes ABS and loans (together 4% of total issuance) and private placements for which the maturity date is not disclosed (EUR137m). **2.** Financial institutions includes financial corporates and development banks. **3.** Perpetual includes Ørsted's 1000 year bond.*

EUR-denominated issuance prevails: it's Europe!

Rather unsurprisingly, European green bond deals are denominated primarily in EUR. This includes all the sovereign bonds from Poland, France and Belgium, but also many corporates and public sector issuers. The second most popular currency is USD and it appears to be used opportunistically to attract USD investors. The high issuance levels from the Swedish public and corporate sectors explain SEK's third spot.

European green bond issuance has been denominated in a further 14 currencies. These relate to issuance by banks Credit Agricole (France), KBN (Norway), NIB (supranational) and KfW (Germany), as well as local currency deals from UK, Norwegian and Swiss issuers. EDF (France) has issued in JPY, and Enel (Italy) in BRL.

Median deal size is EUR91m; average – EUR330m

Most bank issuers, particularly commercial banks, have issued in benchmark size deals of EUR500m or more. Most sovereign bonds and subsequent taps exceed EUR1bn. Non-financial corporates have also issued deals over EUR1bn: EDF, Enel, Engie, Iberdrola, Ørsted and TenneT Holdings (energy), SNCF Réseau (transport). As a result, almost 80% of issuance by volume is of benchmark size.

However, there is a wide range of much smaller issues from the corporate and public sector – particularly from the Nordics – that have been successfully placed in domestic and international markets. In fact, the median deal size is EUR91m and the average deal size is EUR330m across all issuers to date. Half the deals are under EUR100m. This suggests that small works if it's green!

Increasing debt type diversity

Most green bonds are in typical senior unsecured or senior secured format, including medium term note (MTN) issuance programmes. At present we track EUR15.3bn of perpetuals & hybrids, private placements (including loans and project finance), ABS, RMBS, covered bonds, Schuldschein and an aggregation MTN programme secured on commercial mortgage receivables. Structural diversity bodes well for the investment market's ability to support a range of issuer needs and business / funding requirements.

Practically all deals have external reviews

Over 98% of green bond issuance in Europe benefits from at least one external review, and 93% of these reviews include a second party opinion. Vigeo-Eiris has the highest market share among SPO providers at 38% by issuance volume, with CICERO at 29%.

Credit rating agencies Moody's and S&P Global Ratings have provided green bond assessments / evaluations on deals totalling over EUR5bn. Some deals benefit from both ratings and reviews.

Certification is not as prevalent – but rose in 2017

Certification under the Climate Bonds Standard ensures that assets or projects financed by the verified green bond are consistent with the 2°C warming limit set in the Paris Agreement.

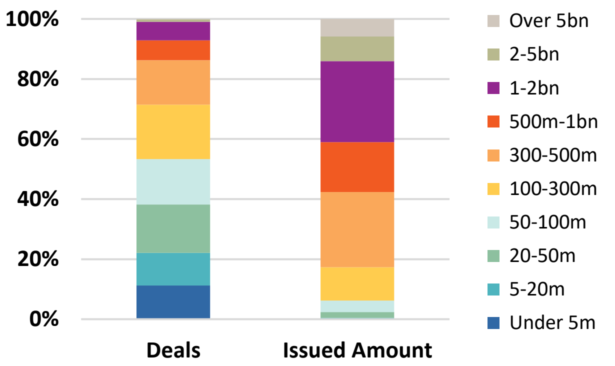
Over EUR8bn of green bonds from European issuers have been certified. Promisingly, 2017 certifications reached EUR4.2bn. The largest Certified Climate Bond volume is attributable to French railway company SNCF Réseau: EUR2.65bn, under the Low Carbon Transport criteria. However, at EUR3.4bn the largest certified volume by sector is Low Carbon Buildings (more on next page).

Over 70% of issuance is in EUR

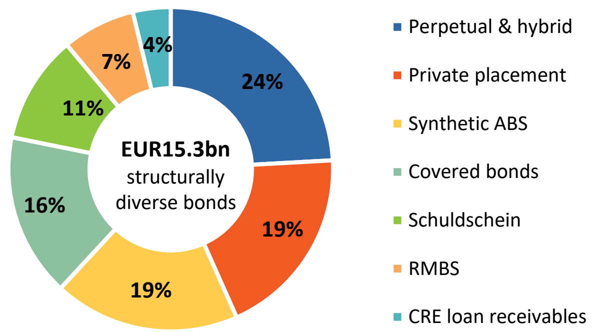
Denomination currency	EUR	USD	SEK	Other	Total EUR bn
Public sector	14%	5%	4%	2%	29.6
Sovereign	13%	-	-	-	15.9
Corporate	27%	-	3%	1%	38.3
Financial	17%	5%	1%	3%	32.3
ABS and Loans	2%	2%	-	-	5.4
Total	73%	12%	8%	6%	121.6

Note: Currency distribution by issuer type adds up to 100% (=EUR121.6bn)

Over half the deals are under EUR100m

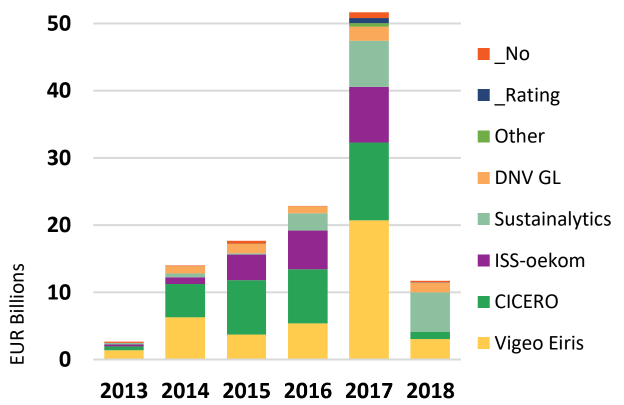


Green label applied to many debt formats



Notes: 1. Loans (EUR1.4bn) are included under Private placement (EUR2.6bn). 2. Ørsted's 1000 year bond is treated as a Perpetual.

Over 98% of issuance has external review



Europe overview

Energy at top spot for allocations, but falling in mix

European issuers have always allocated a substantial part of green bond proceeds to the energy sector. However, the share of Energy in the overall mix has dropped in recent years as the amounts channelled towards Buildings and Transport have risen.

Belgium's green sovereign OLO allocates 85% of proceeds to rail investments, echoing a 2017 trend: French, Spanish and Italian government-backed rail companies tapping the green bond market in size. With big plans to upgrade rail transport across Europe, we would expect to see Transport pull further ahead.

The energy sector

Energy sector issuers account for over 60% of Energy allocations. The rest comes from "aggregators": local government, sovereigns and financial institutions (see next sections). Energy sector issuers use about 90% of bond proceeds for energy investment, but also allocate funds to buildings, water and waste management.

Energy issuance is dominated by titans of European diversified **energy companies**, e.g. EDF, Enel, Engie, Iberdrola. Denmark's Ørsted has transitioned fully from fossil fuels to renewables only, mainly offshore wind. The others are in transition, and green bonds provide a source of dedicated funding for this.

The next largest segment is **grid operators** – TenneT Holdings (Netherlands), NTE (Norway), Fingrid (Finland), Latvenergo (Latvia) – which are connecting renewable energy to the grid and improving grid efficiency. **Wind, solar** and other **renewable energy** generation companies account for a similar volume. **Utilities** – e.g. SSE (UK), Hera and Iren (Italy) – are recent market entrants but have the potential to add volume in size. The newest issuer is Landsvirkjun, Iceland's power company, which generates geothermal and hydro energy. These are new green bond categories for Europe.

The sector includes German **wind turbine manufacturers** Nordex, a Certified Climate Bonds issuer, and Senvion, as well as Nordic **district heating companies**, mainly based in Norway. We expect more energy company participation and more category growth.

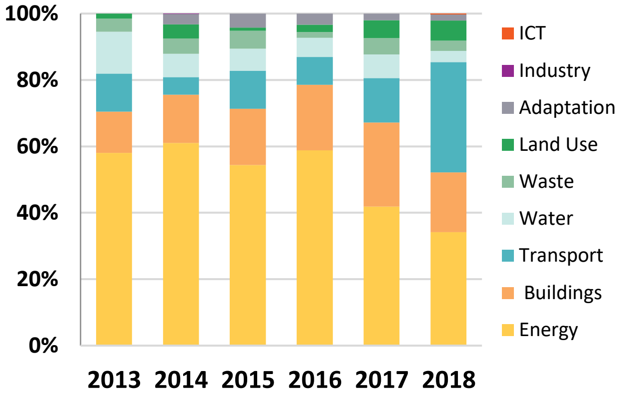
The property sector

Property sector issuers have contributed about 30% of Buildings use of proceeds, with the rest coming from aggregators – particularly under mortgage-related bank deals such as covered bonds – and other green bond issuers. Buildings allocations fund certified buildings and energy efficiency improvements, typically linked to high standards and ambitious targets. Property sector issuers earmarked about 90% of bond proceeds towards buildings, but also for onsite renewable energy, water efficiency retrofits, adding electric vehicle charging stations and better IT connectivity.

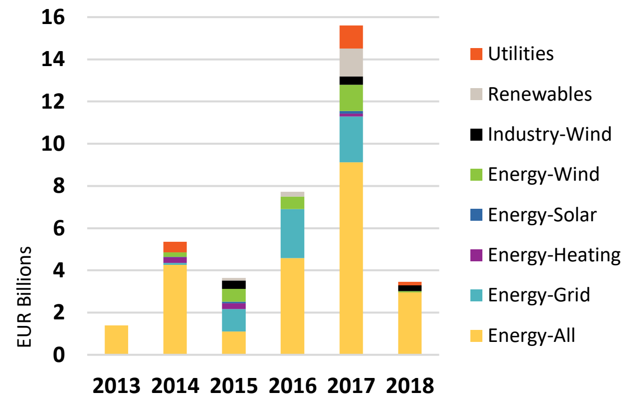
Vasakronan (Sweden) was the first non-financial corporate to issue a green bond in 2013. Swedish property companies have been especially active with issuance across asset classes: commercial real estate, municipal and private housing, public property (schools, care homes, government offices, courts). French property firms are also well represented in the sector with Unibail-Rodamco claiming the top spot as largest property sector issuer to date.

The most recent asset class to make a green bond appearance is logistics courtesy of WDP (Belgium). We expect further diversity.

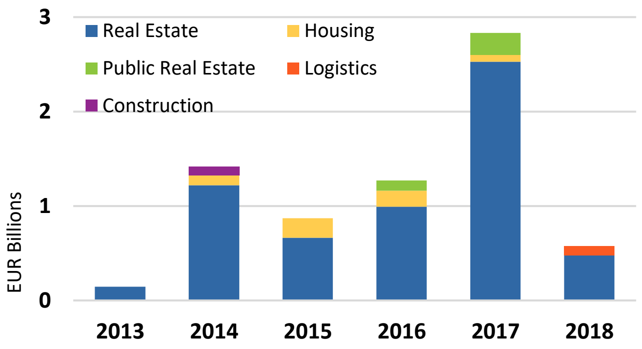
Energy allocations dominate but less so in 2017/18



Many types of energy companies issue



Variety of property assets funded by green bonds



Certification under the Climate Bonds Standard rising

Certification Criteria	2015	2016	2017	2018	Total Share
Low Carbon Buildings	500	1,106	2,324	0	**48%**
Low Carbon Transport	0	1,150	1,750	0	**35%**
Solar and/or Wind	16	1,050	82	275	**17%**
Total (EURm)	**516**	**3,306**	**4,156**	**275**	**8,258**

Note: Certification under the Low Carbon Buildings criteria can be under one of three categories: Residential and Commercial, which focus on carbon intensity metrics, and Upgrades, which focuses on energy efficiency metrics. There has been certification under all three. Certified debt types feature RMBS, bank senior unsecured bonds and loans (Commercial, Upgrades).

Europe overview

The role of government

Sovereign boost builds on public sector success

Sovereign bonds from Belgium, France and Poland have boosted volumes recently. However, public sector issuance commenced in 2010 with state-owned lender KBN (Norway). Since then there has been a steady stream of issuance from cities, municipalities and government-backed entities, particularly from the Nordics and France, where the national climate policy is very supportive.

Local government made the first move

French and Swedish local governments entered the green bond market in 2012/13. The first local government issuer is also the largest: Île-de-France. The next largest are repeat issuers Stockholms Läns Landsting and City of Gothenburg (Sweden). French issuers – there are five so far – represent 44% of local government issuance to date. Sweden's ten issuers account for a further 42%. The balance was issued by City of Oslo (Norway) and Canton of Geneva (Switzerland).

The Canton of Geneva raised funds specifically to fund energy performance improvements in three hospitals. Typically, though, proceeds are allocated to a variety of uses: for instance, the proceeds from the City of Oslo's green bond were allocated to a sewage network project, the expansion of a sewage treatment plant, and the construction of a metro depot and a primary school.

Sovereign issuance scales up

Sovereign green bond frameworks feature a wide range of eligible investment categories. The key ones are renewable energy, low carbon buildings, sustainable land use and low carbon transport. However, actual allocations may vary from bond to bond, as demonstrated by Belgium's first green OLO, which allocated 85% of proceeds to rail transport network investments.

More issuance is expected both from existing sovereign issuers and new ones. The government of Lithuania closed the first EUR20m tranche of a new EUR68m a sovereign green bond program in early May.[1b] The 10-year bond will finance a loan to its Public Investment Development Agency to fund renovations to improve energy efficiency and reduce heating costs in 156 multi-apartment buildings.[1a] Sweden is considering a green sovereign. The UK Green Finance Taskforce has recommended a green gilt for the UK.

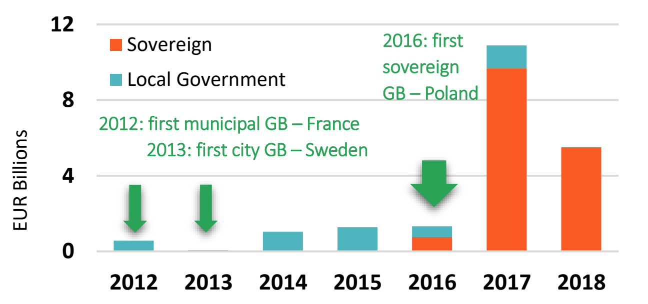
Government-backed entities are key

Government-backed entities from the Nordics and France have made a particularly big contribution to green bond issuance. Total issuance from municipality and sovereign-owned companies exceeds the cumulative amount raised by sovereigns and local government: EUR24.9bn versus EUR20.7bn, as of end Q1 2018.

Government-backed entities include financial institutions, which have generated 47% of the segment's issuance volume, energy (29%) and rail (20%) companies. The top 10 issuers include four financial institutions, which fund the public sector, two German federal state-owned banks, two energy and two rail companies.

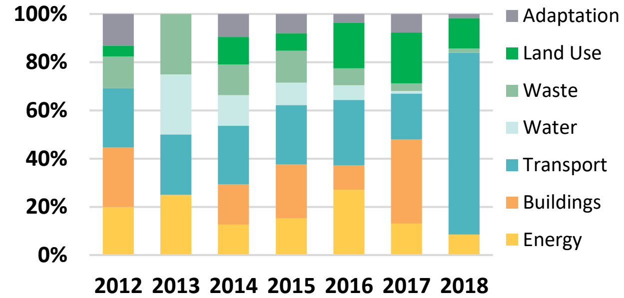
Government-backed issuers have tended to earmark green bond proceeds primarily for investment in energy (36% cumulative, 30% in 2017), transport (26%, 38%), buildings (11%, 13%) and water management (15%, 12%). The financial institutions among them have a more varied allocation mix as a rule – they act as aggregators for smaller funding requirements.

Sovereigns dominate government issuance

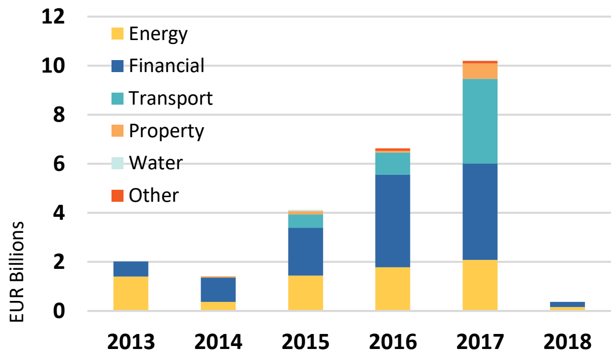


Notes: Data is as of 31st March 2018. In April, France tapped its GrOAT for EUR1.1bn. In May, Lithuania closed its debut sovereign bond of EUR20.

Government use of proceeds

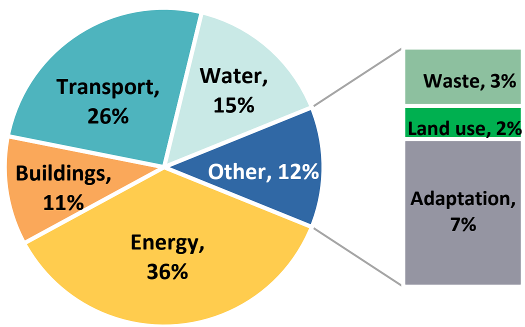


Government-backed entities are from many sectors



Notes: 1. Government-backed entities are defined as companies with over 50% ownership by local government or the state. Some of them may also have listed shares. 2. The category "Other" includes forestry as well as waste and recycling companies.

Government-backed entities fund all asset categories



EUR24.9bn cumulative

Note: Percentage total exceeds 100% due to rounding.

Europe overview

The role of financial institutions

Financial institutions are integral to the market

Financial institutions' green bond issuance is only part of the story. As structuring agents and underwriters, they actively support issuers in coming to market. Asset managers and stock exchanges provide the means to raise funding from investors.

Financial institutions are active green bond issuers

Green bond issuance from European financial institutions totals EUR48bn since 2010 when NIB and KBN first entered the market. A large variety of institutions have issued green bonds, including a synthetic ABS to transfer risk and create green lending capacity for Credit Agricole CIB. Most issuance has been senior unsecured.

Early issuance from financial institutions was more varied in the allocation of proceeds. The mix has shifted to feature an ever greater share of property financing. Banks have used mainly senior unsecured bonds to fund mortgage lending programmes for energy efficient homes (ABN AMRO, Barclays) and commercial properties (BerlinHyp, LBBW), but also covered bonds (EUR2.5bn: BerlinHyp, Deutsche Hypo, SpareBank 1) and RMBS (EUR1.1bn: Obvion).

The Green Loan Principles, recently published by the Loan Market Association, as well as the green tagging of loans would facilitate a more targeted green financing approach across sectors. This in turn could support further green bond issuance from banks.

European underwriters actively support issuance

European banks hold 5-6 of the top 10 spots in Thomson Reuters' annual green bond underwriter league tables from 2013 through 2016, and 7 in 2017. The top 10 underwriters among them are Credit Agricole CIB, HSBC, SEB, BNP Paribas, Barclays, Societe Generale, Deutsche Bank, Natixis, Santander and ING.

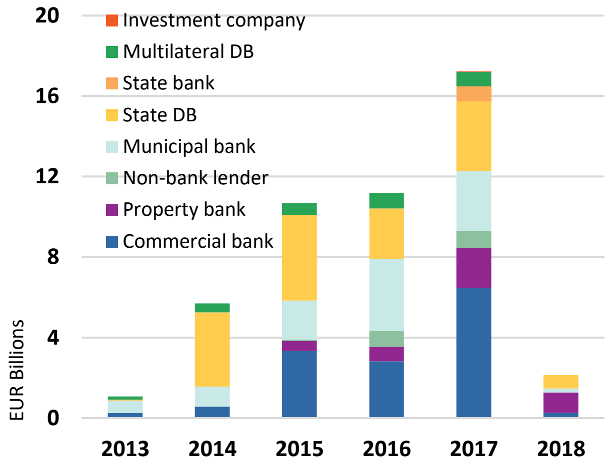
Green bond investment products keep increasing

Solactive (Germany) launched a the first green bond index in 2014. Lyxor (France) launched a green bond exchange traded fund (ETF) in early 2017. Over a dozen European asset managers have set up dedicated funds, albeit our pricing research (see box below) shows that green bonds appeal to a wide pool of investors.

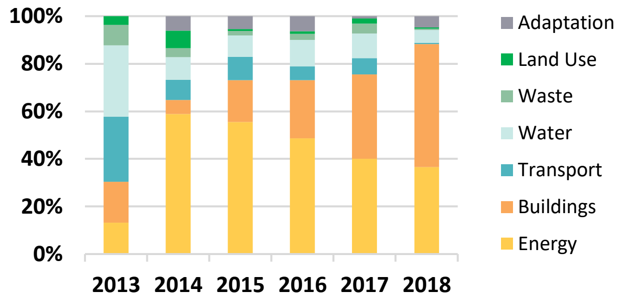
Stock exchanges provide enhanced visibility

Stock exchanges with dedicated green bonds segments increase green bond visibility and their listing requirements promote transparency and market integrity. This supports all investments.

Wide range of financial institution issuers



Financial institutions focus on energy and buildings



EU Stock Exchanges with dedicated green section

Name	Type of section	Launch	Bonds
Oslo Stock Exchange	Green bonds	Jan-15	19 [1]
Nasdaq Stockholm	Sustainable Bonds	Jun-15	80
LSE (LSEG)	Green bonds	Jul-15	55
LuxSE/LGX	Green bonds	Sep-16	170 [2]
Borsa Italiana (LSEG)	Green & Social Bonds	Mar-17	56
SIX (Swiss SE)	Green bonds	Mar-18	12
Vienna Exchange	Green & Social Bonds	Mar-18	3

Notes: 1. 16 are listed on Oslo Børs, 3 on the Nordic ABM. 2. Listings relate to 148 green bonds, 16 social bonds and 6 sustainability bonds.

Green bond pricing

We have been observing how green bonds behave in the primary markets both in isolation and relative to vanilla equivalents.[D] We have looked at green bonds issued between January 2016 and December 2017, denominated in USD or EUR, and a minimum size of EUR300m. Our methodology captures 123 bonds: 62 of these have a country of risk located in one of 13 European countries. 54 are denominated in EUR, and the remaining 8 were issued in USD.

Green bonds price tighter than initial price thoughts, and are oversubscribed. This is no different from other bonds. For Q2, Q3 and Q4 2017, we compared green bond data with that of a vanilla sample and concluded that green bonds achieved, on average, the same as, or higher levels of oversubscription than a vanilla cohort.

Lietuvos 2027, Icade 2027, SNCF 2047, and Iren 2027 experienced significant price tightening from initial price thoughts to final pricing.

Overall, just under half of the European bonds tightened by more than their vanilla cohort during the pricing process.

We have built yield curves on the issue date of 42 green bonds in our sample to determine whether there was a new issue premium, or the absence of one, a "greenium". Overall, we found that 19 green bonds exhibited a traditional new issue premium at issue (including Iberdrola 2027, Poland 2021, Tennet 2020 and 2025). Ten bonds priced on their existing yield curves (including ICADE 2027, SNCF 2047), while 13 bonds priced inside their yield curves, thus exhibiting a *greenium* (FRTR 2039, Gas Natural Fenosa 2025, Iberdrola 2025, Nordea Bank 2022). While the data is too limited to draw definite conclusions, we can say that those buying green bonds cannot assume that they will receive a new issue premium.

France

Cumulative green bond issuance (2012-Q1 2018): EUR37.8bn, 25 issuers, 146 deals, 3rd in global rankings
2017 green bond issuance: EUR20.4bn (4.5x higher than 2016), 13 issuers, 3rd in 2017 country ranking
Corporates and local government expected to drive future issuance, with continued sovereign bond taps

France holds top spot in European country ranking

French green bond issuance commenced in 2012 with the first three French deals coming from local government entities Île-de-France, Provence-Alpes-Côte d'Azur and Hauts-de-France. These pioneering deals laid a solid foundation. France now boasts the largest green bond market in Europe and the third largest globally.

A market, fuelled by non-financial corporate and government-backed issuers since 2013, with a recent push from the state. The EUR9.7bn Sovereign Green OAT (GrOAT), the largest green bond ever issued, accounts for nearly half the green bond volume in 2017. It epitomizes the driving role of France in spurring growth.

After the French Treasury, the next largest issuers are the state-owned energy companies Engie and EDF, followed by the largest financial issuer, Credit Agricole CIB, who is also the most prolific issuer with 100 deals closed since 2013, including a USD3bn ABS.

The market has diversified since 2012, welcoming new issuers as well as new instruments. Mid-sized companies such as Neoen, Akuo Energy and Foncière INEA are starting to issue green bonds, a healthy sign of evolution for the French market.

Allocations to buildings (32%) surpassed those for energy (18%) in 2017, with transport sector allocations also rising due to strong issuance by state-owned rail company SNCF Réseau. However, allocations to other sectors remain very limited.

France demonstrates best practice issuance. French green bond issuers have an excellent track record in the use of external reviews (97.5% of bonds by value have them). Their green bond reporting has shown, on average, a high level of transparency.[E] Issuers are also increasingly using the Certification under the Climate Bonds Standard to signal their commitment to financing projects or assets compliant with the Paris Agreement.

Potential for future growth across sectors

Our ***Green bond opportunities in France*** **report, released in April**,[F] includes a sample of potential green bond issuers, such as pureplay companies, government-backed entities and 25 local governments. Pays de la Loire has already announced green bond intentions.[2]

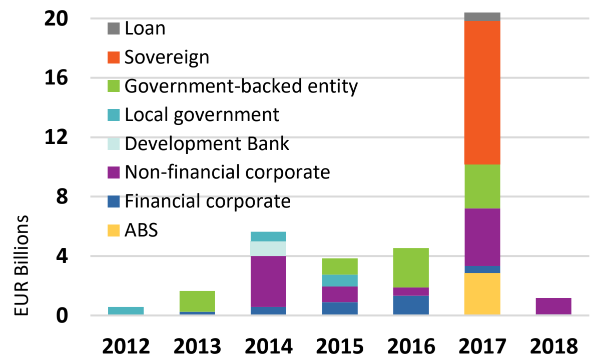
The government has embarked on a Big Investment Plan worth EUR57bn, to be implemented during the current 5-year term. The EUR20bn for the energy transition comprises:

- EUR9bn to improve the energy efficiency of housing for low-income households and public buildings
- EUR4bn to improve daily modes of transport
- EUR7bn to finance a 70% increase in the renewable energy production capacity

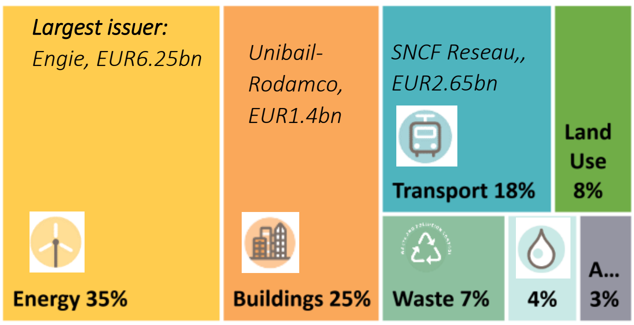
The draft Mobility Orientation Act will set out investment priorities for major transport infrastructure projects for the next 20 years.

The French government has created labels to increase green asset visibility. The TEEC label has been awarded to 18 funds with EUR2bn of assets under management (AUM), the ISR label to 119 funds with EUR22bn AUM and a label for crowdfunding platforms, which finance green growth projects, to 16 platforms. Other avenues to facilitate market access for smaller companies include tax incentives for SMEs and wider adoption of aggregation platforms, e.g. green securitisation.

2017 issuance more than quadrupled from 2016



60% of allocations since 2014 went to top 2 sectors



Note: *The chart shows the largest corporate issuer for the top 3 sectors. In the Buildings category, the largest issuer overall is France as its GrOAT allocates 33% of proceeds to buildings or EUR3.2bn as of Q1 2018.*

New green bond issuers in 2017 and Q1 2018

Issuer Name	Issued EUR m	Issuer type	Use of proceeds
CDC	500	Gov-backed entity	Buildings
Icade	600	Non-financial corp.	Buildings
Ivanhoé Cambridge, Natixis Assurances	480	Loan	Buildings
Quadran Energies	46	Non-financial corp.	Energy
RATP	500	Gov-backed entity	Transport
Republic of France	9,700	Sovereign	Mixed
Foncière INEA	100	Non-financial corp.	Buildings

Republic of France's GrOAT: a green stepping stone

France was the first nation to commit to issuing a sovereign green bond after COP21 in 2015. The Treasury has tapped the initial EUR7bn issue (Jan 2017) thrice for a total of EUR3.8bn, and has identified EUR8bn of eligible spending for 2018.

"*The idea was to help the green bond market to develop, by providing investors sensitive to the environmental issue a liquid asset, with a sovereign risk profile, and to contribute to the defining standards not as a regulator but by imposing ambitious reporting obligations,*" said Jean Boissinot, French Treasury at the 2017 Climate Finance Day in Paris.

Germany

Cumulative green bond issuance (2013-Q1 2018): EUR22.6bn, 12 issuers, 41 deals, 4th in global rankings
2017 green bond issuance: EUR8.4bn (1.8x higher than 2016), 11 issuers, 4th in 2017 country ranking
Corporates expected to drive future issuance, but local government could follow City of Hanover's April lead

Steady growth since 2013 ranks Germany 4th globally

With a large vanilla bond market, a strong policy backdrop and a wide base of banks and potential issuers, Germany has huge potential for further green financial growth. German investors can lead on fund deployment, banks – on growing the green covered bond market, Deutsche Börse – on providing essential market infrastructure and services.

In 2017, non-financial corporate issuance tripled compared to 2016; rose 2.5x for state-owned banks; and, doubled for financial corporates. Still, development bank KfW remains the largest issuer; accounts for 58% of all issuance to date; and, is the most prolific issuer. New market entrants in 2017 contributed 30% of 2017 issuance and we hope to see further issuer diversification.

96% of issuance benefits from an external review or Certification under the Climate Bonds Standard. This has been instrumental in ensuring international investor confidence in the green credentials of the market and sets a strong benchmark for German entities looking to join the green bond market.

France and Germany have the highest number of Certified Climate Bonds in Europe. The total for Germany is EUR2.45bn. In 2017, MEP Werke achieved the first green loan Certification under the Climate Bonds Standard. External reviews are in the form of second party opinions. CICERO holds the largest share by issue amount, followed by ISS-oekom, Sustainalytics and DNV GL.

68% of green bonds issued are denominated in EUR. USD deals account for 20%, followed by GBP (5%), SEK (4%) and AUD (3%). KfW has issued in all these currencies. Agricultural development bank Landwirtschaftliche Rentenbank has also diversified its currency profile issuing in EUR, USD and AUD.

German issuers raise bonds of sizable amount: over 61% of total issuance relates to bonds of EUR500m or more, and a third comes from 4 KfW deals of over EUR1bn. Less than 1% of issuance had a ticket size under EUR100m, most of it issued by agricultural development bank Landwirtschaftliche Rentenbank. Except for one Nordex deal, financial institutions dominate the EUR100-300m range, too (6% of cumulative issuance volume).

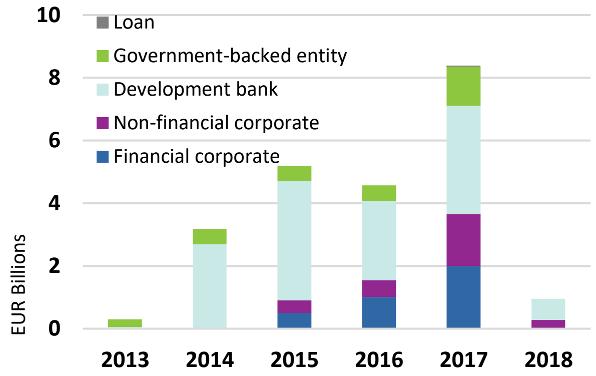
Non-financial corporates issue in the 5-10Y range, except for MEP Werke's 20-year, EUR30m green loan. Two-thirds of KfW issuance has a term of up to 5Y, but other banks tend to issue benchmark deals with mainly 5-10Y tenors.

Energy dominates the use of proceeds. 80% of cumulative proceeds went to renewable energy. Buildings accounted for 14%, followed by water (3%). The remainder was allocated to waste management, transport, energy-intensive industry and adaptation.

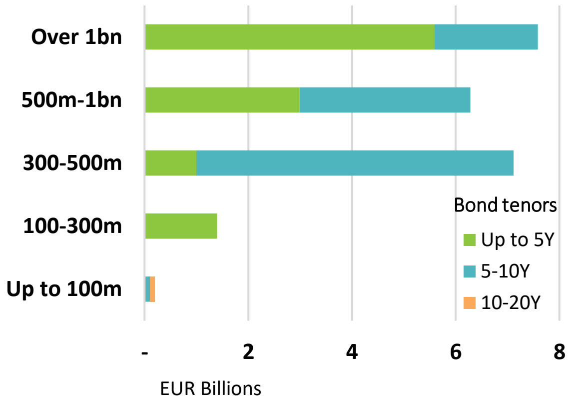
Although Energy remained the dominant category from 2014 to 2016, with at least 85% of annual issuance allocated to this category, its share in the use of proceeds mix decreased to 73% in 2017. In part, this is due to increased issuance related to financing Buildings: rising from 12% in 2016 to 23% in 2017.

2017 was the first year that proceeds were allocated to Industry & energy-intensive products. This relates to MANN+HUMMEL's EUR400m green Schuldschein. Two other manufacturers feature among green bond issuers: wind turbine producers Nordex and Senvion, and their proceeds are allocated to Energy. Given Germany's strong industrial base, we expect these three companies to be the first of many industrial sector issuers.

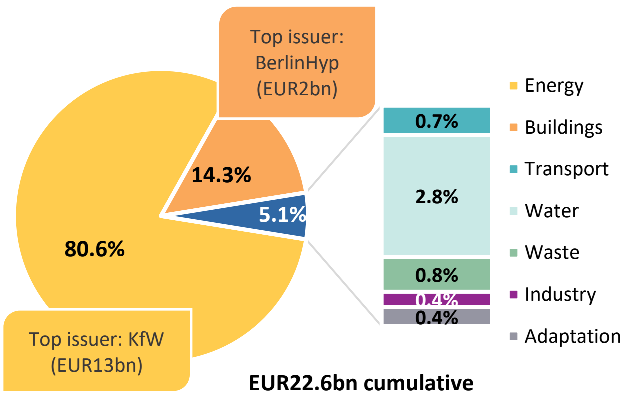
2017 green bond issuance nearly doubled from 2016



Tenors up to 5Y more prevalent on large deals



Renewables are by far the most popular investment



New 2017 issuers include first industrial corporate

Issuer Name	Issued EUR m	Issuer type	Use of proceeds
Innogy	850	Non-financial corp.	Energy
LBBW	750	Gov-backed entity	Buildings
Deutsche Hypo	500	Financial corp.	Buildings
MANN+HUMMEL	400	Non-financial corp.	Mixed
MEP Werke	30	Loan	Energy

Germany

High quality annual reporting. More than 80% of German green bonds by number and amount, had reporting in place, according to our Use of Proceeds research conducted in 2017.[E] BerlinHyp's reporting was highlighted as an example of best practice.

Green bond index and dedicated funds benefit all

German investors play an important role in the market globally with large investors including Union Investment (green bond fund launched in 2017) and Allianz (green bond fund launched in 2015).

German intermediaries have shown leadership in providing essential market infrastructure and services. This includes the first ever green bond index from German index company Solactive launched in early 2014. Both the VanEck and Lyxor green bond ETFs – launched in early 2017 – are based on the Solactive index.

The Deutsche Börse was the backdrop for the investor driven Frankfurt Declaration[3], a signal that developing centres of green finance and trading is not being left to London or Luxembourg. Frankfurt hosts the headquarters of the ECB and has both the political support and financial infrastructure to become a green finance hub. The explicit acknowledgement in the Frankfurt Declaration of the Sustainable Development Goals and the Principles for Responsible Investment is a positive, as is the recognition that finance sectors must be a major driver of sustainable development.

Sector growth and future potential

There is more potential for growth in the market, as outlined in our previous country report.[G] The table below provides examples of German entities operating in sectors that are aligned to the Climate Bonds Taxonomy and which could be potential green bond issuers. It is not an exhaustive list.

On the local government side, more than 14 German states and cities have been identified as potentially having assets and projects suitable for green bonds. Among them, 13 states have more than EUR1bn outstanding debt, and 5 states have issued on international markets (State of Berlin, Hesse, Schleswig-Holstein, Brandenburg and Saxony-Anhalt). Four cities have debt outstanding of more than EUR100m (Ludwigshafen, Dortmund, Hannover and Bochum). In April 2018, Hannover launched its first green bond: a 30-year, green Schuldschein.[4]

A strong policy backdrop

Energy. Germany has a history of progressive policy on green initiatives. Its energy transition strategy – Energiewende – is one of the most ambitious climate strategies in the world. The policy may have big implications for the green bond market through its goals: (1) to increase energy from renewables to 80% of power consumption by 2050 (currently 36%) and (2) to reduce energy consumption by 25% by 2050, compared to 2008 levels.[5]

Transport. Germany has set itself a target to have 1 million electric cars by 2020.[6] In early 2018, the Federal Administrative Court in Leipzig ruled that cities may be allowed to have driving bans for old diesel vehicles.[7] If German states and/or cities impose bans to reduce pollution levels, this could strengthen the case for greater investment in electric cars. That could be funded by green bonds.

Initiatives. As part of its G20 presidency, Germany has launched the GreenInvest platform to engage developing countries on green finance.[8] Wider developments in Germany also include the initiation by the Association of German Public Banks (VÖB) of the Green Bond Initiative Germany, which includes an expert dialogue with stakeholders from the German market.[9] Furthermore, the state of Hesse has stated its intention for Frankfurt to become a green finance hub for Europe and created a Green Finance Cluster in late 2017.[10]

6 action points to grow the German market

1. Sovereign, sub-sovereigns: issue demonstration green bonds
2. Investors: signal demand for corporate and ABS issuance
3. Corporates: join the market and increase deal flow
4. Policy-makers: promote standards and regulations which support medium- to long-term investment in green assets
5. Central banks: send strong signals of support to build confidence among issuers and investors
6. Stock exchanges: 10 exchanges now have a dedicated green or sustainable segment. Could Deutsche Börse be next?

Sector	Name	Issuer type	Issuer description
Energy	E.ON SE	Non-financial corp.	Energy company with bonds listed internationally.
	PNE Wind AG	Non-financial corp.	The company develops onshore and offshore wind farms.
	Centrosolar Group AG	Non-financial corp.	Active in the photovoltaic industry. It manufactures solar energy systems for households and industrial customers.
	Energiekontor AG	Non-financial corp.	Specialist developer and manager of wind and solar farms.
Transport and logistics	Deutsche Bahn AG	Gov-backed entity	State-owned railway company.
	MIFA Mitteldeutsche Fahrradwerke AG	Non-financial corp.	Manufactures and sells bicycles, including e-bikes, for wholesale, retail, and specialist trade.
	Deutsche Post AG	Non-financial corp.	Postal service and international courier service company. It has raised debt on the international market.
Buildings	FMS Wertmanagement	Gov-backed entity	Operates as a winding-up institution for the nationalized Hypo Real Estate Holding AG (HRE Group). It has raised debt on the international market.
Waste and Pollution Control	ALBA Group	Non-financial corp.	Provides recycling and environmental Services.
Mixed	Investitionsbank Berlin	Development bank	Offers financial assistance mainly to SMEs and start-ups.
	Investitionsbank Schleswig-Holstein	Development bank	Offers financing for corporate, real estate, and public infrastructure, as well as city development, environmental, and energy projects.

The Netherlands

Cumulative green bond issuance (2014-Q1 2018): EUR13bn, 8 issuers, 25 deals, 5th in global ranking
2017 green bond issuance: EUR3.5bn, a 32% drop from 2016 but still 10th in 2017 country ranking
Climate adaptation financing expected to drive future issuance, with public sector green bonds highly likely

Corporates are driving Dutch issuance

2016 marked a record for Dutch green bond issuers, but issuance fell in 2017, mainly due to no new issuance from commercial banks. However, ABN AMRO closed a new EUR750m green bond in April 2018, so the dry spell seems to be ending.

Non-financial corporates have demonstrated strong momentum, accounting for 57% of annual issuance in 2017 and 40% overall since the first green bond issue in 2014. The next largest issuer segment is government-backed entities with EUR3.7bn issued or 29% of cumulative issuance. Green RMBS contributed EUR594m in 2017 and EUR562m in 2016. The first green loan between Dutch property company OVG and ABN AMRO was raised in 2016 to fund energy efficiency upgrades to commercial buildings.

The two largest issuers account for 67% of the Dutch green bond market (see table below). TenneT Holdings' 8 deals (EUR5bn in all) account for 77% of the cumulative proceeds allocated to Energy. The Nederlandse Waterschapsbank N.V. (NWB), a dedicated lender which provides loans to the regional Water Boards in the Netherlands, has issued 7 green bonds, totalling EUR3.7m.

Issuer	Sector	Issued (EUR)	Deals
TenneT	Energy grid	5.0bn	8
NWB Bank	Municipal bank	3.7bn	7
ING	Commercial bank	1.3bn	3
Obvion	Non-bank lender	1.1bn	2
ABN AMRO	Commercial bank	1.0bn	2
Rabobank	Commercial bank	500m	1
Alliander NV	Energy grid	300m	1
OVG	Real estate	80m	1

Energy accounts for almost half the allocations, with proceeds applied to diverse renewable assets such as onshore and offshore wind farms, solar projects, electricity transmission from offshore wind power plants into the onshore electricity grid, etc.

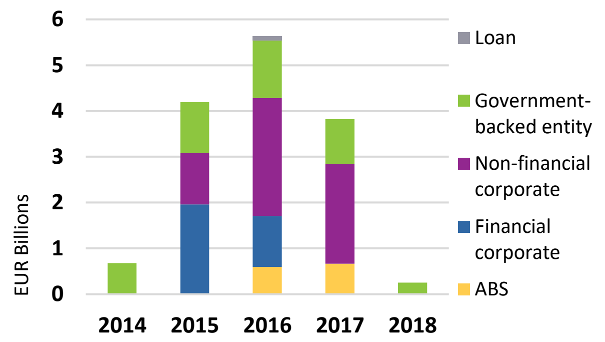
Building allocations also contribute significantly to the mix. ABN AMRO has now issued three green bonds to raise funding for green mortgages and energy efficiency upgrades. Obvion, a Rabobank subsidiary, has issued two Green Storm RMBS deals, backed by residential property with 30% efficiency improvement targets.

All bonds benefit from an external review: 92% of the universe has a second party opinion and the rest are Certified Climate Bonds. Over half the SPOs are provided by ISS-oekom, and the rest by CICERO and Sustainalytics. Certifications are related to ABN AMRO and Obvion deals and have been provided under all three Low Carbon Buildings criteria: Residential, Commercial and Upgrades.

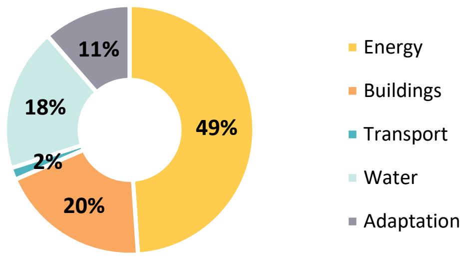
Government climate budget will support green bonds

The Dutch government will invest EUR300m per year in measures to help reduce the country's carbon emission by 49% by 2030.[11] Investment plans for 2018 include disconnecting homes from the natural gas grid; reducing emissions from glasshouse horticulture and livestock farming; introducing hydrogen fuel-cell buses and hydrogen filling, as well as climate-neutral, circular public procurement. The Dutch government's commitments under the climate budget should drive further green bond issuance from the public and private sector.

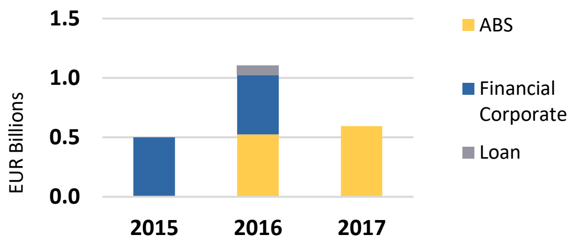
Annual issuance slowed down in 2017 but continues



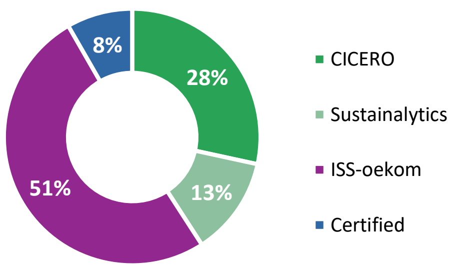
Renewable energy is the largest theme



Certification used by variety of issuers



All bonds carry at least one external review



Sustainability bonds have become a phenomenon

Issuance of sustainability, ESG and social bonds, from Dutch issuers has reached at EUR5.6bn. For example, BNG Bank, FMO and NWB Bank have issued such bonds for investment in social housing. Although we acknowledge the importance for achieving the broad Sustainable Development Goals, these bonds have not been included in our database as our focus is on debt financing which delivers a clear climate benefit.

The Netherlands

Looking ahead: public sector adaptation bonds

We expect to see more green bonds raising funds for adaptation. Holland is becoming increasingly vulnerable to floods as a result of climate change. NWB's green bond framework already includes adaptation. BNG Bank and other public sector institutions could also leverage green bonds to raise financing for local water authorities' investments in resilience infrastructure such as dykes, flood barriers and canals. Research commissioned by the Netherlands Enterprise Agency and the Ministry of Economic Affairs highlights how green bonds can help scale up integrated landscape management and suggests that Invest-NL can play a key role in providing risk capital to public and private entities that would allow green securitisations to become investment grade.[12]

Municipalities could also identify climate-aligned assets on their balance sheets and in budgets to create a green bond pipeline. The Municipality of Amsterdam, for instance, has issued EUR1bn municipal bonds on the international market. The municipalities of Rotterdam and Utrecht have EUR100m and EUR70m outstanding bonds. In addition to taking action on building and financing for new climate resilient infrastructure, municipalities could also use green bonds as a refinancing tool for the existing projects and assets that are in line with the country's climate target.

Dutch Central Bank intends to embed climate change risk assessments in its supervision

DNB intends to take steps to embed climate-related risks into the supervisory approach by incorporating climate related risks in its assessment frameworks.[13] This will encourage Dutch banks to monitor exposure more closely and could discourage investment in climate-vulnerable industries while incentivising green financing.

This is in line with proposals laid out in our discussion paper *Recommendations for central banks on how to support the development of the green bond market*, which was released in November 2017 at a green finance conference co-organized by the Council on Economic Policies and DNB. Integrating climate risks into the eligibility criteria of central bank collateral frameworks could provide a capital advantage to banks holding green assets, ultimately translating into cheaper funding for banks with less risky (climate aligned) assets.

Belgium

2nd largest sovereign green bond issuer

Belgium's EUR4.5bn, 15-year, 1.25% green OLO is the second largest sovereign green bond issued to date. Proceeds will primarily be allocated to clean transport (85%) with EUR2.2bn to be used in domestic passenger trains for the benefit of SNCB and railway projects. The issuance demonstrates Belgium's strong commitment to fight climate change and stimulates the untapped market potential for both public and private sectors to raise climate funds through green bonds.

There have been two other green bonds issued by Belgian companies. Aquafin, a municipal entity, issued a EUR40m bond in 2015 for water treatment projects. WDP has become the first European logistic company to issue a green bond with the EUR100m proceeds to be allocated to green buildings, on-site clean energy generation, energy efficiency programmes, etc.

Opportunities for green bond issuance

Belgium is targeting emissions reduction of 35% by 2030.[14] In particular, targets in key sectors include:

- Clean transport: Investment in railway infrastructure (GEN/RER1) and promotion of clean transport (such as EV, bicycles and mass public transport) are a priority.
- Energy Efficiency: Belgium's scenario analysis show that the country needs to achieve a reduction of 87%-100% of buildings CO_2 emission by 2050 through 3% renovation rate per year of public buildings.
- Renewable Energy: The parliament resolution aims to achieve 100% renewable energy in the county. Promotion of offshore wind electricity production is required.

The investment needs for green infrastructure over the next decade could be funded, in part, by green bonds.

Luxembourg

Home of the first green stock exchange

The only green bond issued by a Luxembourg corporate is Alpha Trains. Its 20-year, EUR250m bond was raised to refinance debt associated with the acquisition of electric trains.

The European Investment Bank, headquartered in Luxembourg, is the first and largest green bond issuer globally, but it is not included in country figures as it is a supranational. In spite of the small base of domestic issuers, Luxembourg has become a leading global hub for green bonds.

Opportunities for green bond issuance

Launched in 2016, the Luxembourg Green Exchange is the world's only dedicated and largest listing venue for green bonds. It imposes strict eligibility criteria and issuers commit to disclosing detailed information on planned use of proceeds and providing an ex-ante external review, as well as a post-issuance reporting throughout the lifespan of the green bond.

International asset managers have launched Luxembourg-domiciled green bond funds. Amundi and IFC's Emerging Green One fund has already raised USD1.42bn.[15] The EUR17bn Luxembourg pension reserve fund, Fonds de Compensation, recently announced it will launch two sub-funds dedicated to green bonds and green equities in 2018.[16]

The Climate Finance Accelerator launched by the Ministry of Finance and Ministry of Sustainable Development and Infrastructure in June 2017 aims to join the government and private actors, creating the structures required to support climate financing.[17] The new initiative will offer assistance to investment fund managers that want to invest in projects with a measurable impact to address climate change. Over the next three years, the government will contribute EUR2m to the initiative, with another EUR1m coming from other sources.

The Nordics – Highlights

Cumulative green bond issuance: EUR18.4bn, 58 issuers, 139 deals, 5 countries, 2018 debut from Iceland
2017 green bond issuance: EUR7.3bn (1.8x higher than 2016), 17 new issuers

Country	Rank	2017	Issued (EUR)	Issues	Issuers	First issuer (issue year)	Largest issuer	Issued 2017 (EUR)	Issued Q1 2018 (EUR)
Denmark	18th	16th	2.3bn	4	4	Vestas (2015)	Ørsted	1.75bn	n/a
Finland	25th	19th	1.1bn	4	2	MuniFin (2016)	MuniFin	633m	n/a
Iceland	41st	n/a	163m	1	1	Landsvirkjun (2018)	Landsvirkjun	n/a	163m
Norway	15th	21st	3.8bn	28	13	KBN (2010)	KBN	583m	1.0bn
Sweden	6th	6th	10.9bn	112	38	City of Gothenburg (2013)	Kommuninvest	4.3bn	743m

Nordic countries at the forefront of sustainability and defining "green". Environmental and sustainability targets are integrated into local and central government budgeting and in key laws such as building codes. This provides for wide support of climate-aligned initiatives and investments. **For a more detailed regional analysis, see our two companion reports issued in February.**[H]

Nordic issues may often be small but Nordic institutions have made BIG contributions to the green bond market. The high use of external reviews and strong focus on impact reporting have set best practice standards. Increasing investor support, new stock exchange green bond lists and a wide use of aggregation platforms should help the Nordic markets continue to grow and innovate.

Sweden

Largest, most diverse Nordic market

Sweden has been forging a green bond path ever since the City of Gothenburg issued its first green bond in 2013. 10 new issuers debuted in 2017. Vellinge Municipality and Klövern joined the market in Q1 2018. Many market participants are repeat issuers.

Looking ahead. A sector to watch is housing. Only three of 306 municipal housing companies have issued green bonds, for instance. The mortgage-backed bond market is also large. Cities such as Borås and Helsingborgs, as well as the municipalities of Avesta, Huddinge, Jonkopings, Norrtälje Södertälje, Sundsvalls and Uppsala are good contenders. Käppalaförbundet (water sector) and Vattenfall (energy) are also well positioned as potential green bond entrants.

Sweden's Climate Act came into force in January 2018. Expectations that Sweden will issue a green sovereign in 2018 have risen after this was recommended in a government inquiry, commissioned by the Minister of Financial Markets and Consumer Affairs.[18]

Finland

MuniFin dominates issuance

Local government funding agency MuniFin was the first issuer and is the largest with 3 bonds. In 2017, Fingrid became the first corporate to issue a green bond with its EUR100m deal.

Looking ahead. Export credit agency Finnvera and investment outfits Finnfund, Governia Oy and TESI Finnish Industry Investment are good candidates to issue green bonds. Companies with climate aligned activities such as Fortum Corp., Gasum Corp., Kemijoki Oy and Vapo Oy (all energy), Metsähallitus (forestry) and VR-Yhtymä Oy (transport) could issue green bonds. A-Kruunu Oy and Finavia Corp. (buildings) are also contenders, as are covered bond issuers such as OP Mortgage Bank.

Finland has yet to see direct local government issuance. Its six largest cities – Helsinki, Espoo, Tampere, Vantaa, Oulu and Turku – could pool their resources under the auspices of 6Aika to issue jointly to deliver on their sustainable urban development goals.

Norway

A diversified green bond market

Local government funding bank KBN was the first Nordic green bond issuer. In 2017, the market saw 4 entrants. SpareBank 1 Boligkreditt issued the first Nordic green covered bond in Q1 2018.

Looking ahead: There is high conversion potential for local government (146 cities and municipalities have already been identified as potential green bond issuers). Other good contenders for debut green bonds are Statnett and Statkraft AS (energy), Norges Statsbaner AS (transport), Norske Skog (forestry and sustainable land use), KLP Kommunekreditt AS and its mortgage subsidiary KLP Boligkreditt AS (buildings) as well as Eksportkreditt Norge, Norfund and Rainforest Fund (multi-sector).

Denmark

Two new issuers in 2017 bring scale

Vestas issued the first Danish green bond in March 2015. Local government funding agency KommuneKredit joined the market in 2017, followed by a EUR1.25bn debut by Ørsted (clean energy).

Looking ahead: Danske Statsbaner (transport) is well placed for issuing green bonds. A notable void is visible in property-backed issuance, especially given that mortgage bonds represent ca. 80% of all Danish bonds outstanding. District heating generated from renewables could fit green bond parameters. Cities with large investment budgets in 2017 include Copenhagen and Helsingør. With the top 10 municipalities spending in excess of EUR4.5bn, these are volumes that could potentially be funded with bonds.

Iceland

Maiden green bond issued in 2018

The first Icelandic entity to issue a green bond is state utility Landsvirkjun (USD200m): in March 2018.

Looking ahead: Municipality Credit Iceland, which funds the public sector, has issued five bonds and as an aggregator is well placed to become a green bond issuer. 16 cities and municipalities have accessed the debt capital market and could potentially issue green bonds, among them Reykjavik, which has ambitions climate-related investment plans aimed at reducing emissions from transport. Utility company Orkuveita Reykjavikur, loan agency Icelandic Regional Development Institute and the Housing Finance Fund are also contenders. Finally, sovereign green bond issuance would allow government to address a wide range of funding requirements related to its climate agenda.

Spain

Cumulative green bond issuance (2014-Q1 2018): EUR9.8bn, 6 issuers, 18 deals, 7th in global rankings
2017 green bond issuance: EUR5.2bn (53% of cumulative volume), 5th in 2017 country rankings
Corporates expected to drive growth despite unsupportive government energy policy

Corporate entities spurred Spain's market

The first Spanish green bond issues came in 2014 from energy companies Iberdrola and Abengoa Greenfield. They set the pace. Issuance scaled up fast. 2017 volumes almost doubled from 2016.

Deals from non-financial corporates prevail and represented 75% of 2017 volume. This is mainly due to repeat issuance from Iberdrola, Spain's largest green bond issuer (6th largest globally). The first public sector deal came in 2017 with a EUR600m bond from Adif Alta Velocidad. The proceeds have been deployed for investment in 5 high-speed rail lines, and Adif AV returned to the market in late April 2018 with another EUR600m green bond.

The energy sector represents 94% of issue volume with proceeds allocated solely to renewable energy. Consequently, overall use of proceeds is dominated by energy. The rest is for transport.

Debt instrument diversification is emerging. Spanish renewable energy and infrastructure company Acciona issued a EUR150m green Schuldschein in October 2016. In early 2017, Iberdrola became the first Spanish green loan borrower with a EUR500m facility. Ence Energia issued a EUR220m green loan in Q4 2017 to finance projects and assets related to biomass energy generation. Loans made up 14% of green issuance in 2017. Spain has also seen two hybrid green bonds coming to market, both issued by Iberdrola to finance renewable energy projects in the UK.

All Spanish green bonds benefit from an external review. Vigeo Eiris provided second party opinions to 92% of issuance by volume, while CICERO covered 6%. Ence Energia's green loan was awarded an E1/75 Green Evaluation score by S&P Global Ratings.

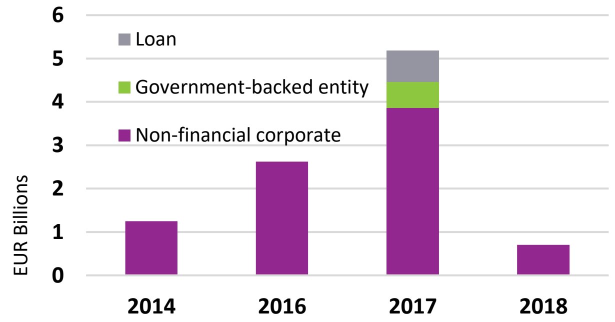
Great potential for renewables but poor policy

Spain has great potential in energy generation from renewables but consumption is hampered by unsupportive state policies. Renewable energy already accounts for around 40% of electricity generation but for only 6.6% of final energy consumption, which is well below the country's 20% by 2020 target. Energy policies have not provided strong enough support to the development of low-carbon technologies, with Feed-in-Tariffs being suspended in 2012 and taxes on consumers using solar storage batteries introduced in 2015[19]. When Iberdrola announced plans to phase out its coal power generation in November 2017, the government opposed the company's decision through a decree protecting coal power plants.

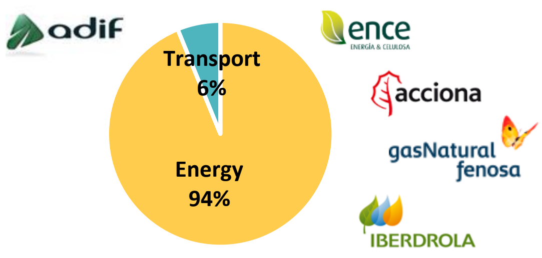
Opportunities for growth point to increased corporate issuance. Despite weak energy policies, green bond issuance is signalling that corporates support the transition to a low-carbon energy system. Our 2017 *Global State of the Market* report identified Ence Energia Y Celulosa, a company specialised in the production of eucalyptus pulp and renewable biomass energy, as a candidate for green bond issuance. Since then, its renewable energy division Ence Energia has entered the market, but there is still potential for forestry-related green financing.

Befesa Zinc Aser and Befesa Medio Ambiente, two recycling companies dealing with industrial waste, are also potential issuers. Transport service company Avanza Spain is another pureplay issuer that could potentially transition to issuing green debt.

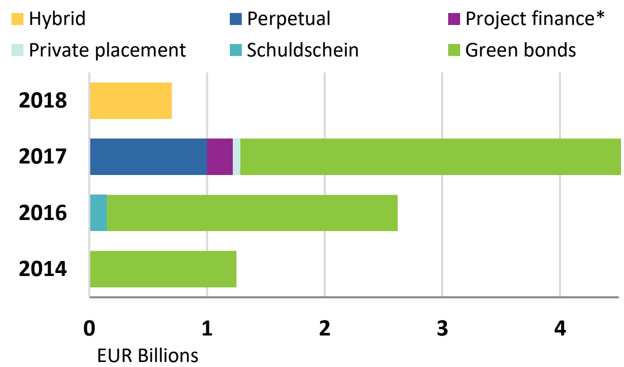
Non-financial corporates drive issuance



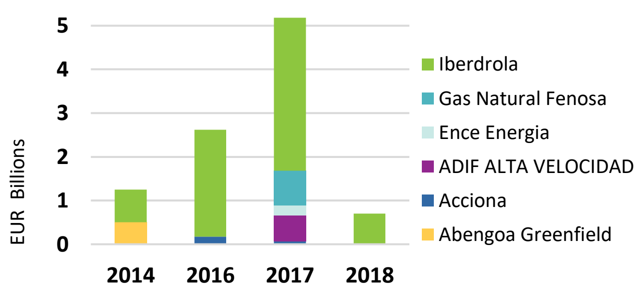
Renewable energy dominates proceeds



Bond types are diversifying



Iberdrola accounts for 76% of volumes



Local governments issue sustainability bonds

Recent deals from Community of Madrid and City of Barcelona total EUR2.5bn. These bonds are not included in the CBI green bond database as substantial proceeds are allocated to social projects in healthcare, education, affordable housing, etc.

Italy

Cumulative green bond issuance (2014-Q1 2018): EUR5.1bn, 9 issuers, 12 deals, 12th in global rankings
2017 green bond issuance: EUR2.9bn (58% of cumulative volume), 12th in 2017 country rankings
Energy and transport companies expected to drive growth, and a sovereign green bond is a real possibility

More than half the Italian issuers debuted in 2017

The Italian green bond market launched in 2014 with deals from multiutility company Hera and energy companies Enna Energia and Innovatec. The number of green bond issuers has grown to nine, five of which entered the market in 2017. Last year's deal volume of EUR2.9bn represents an eight-fold increase from 2016.

Energy sector corporates dominate the market with 77% of total issuance. Within the sector, 73% of issuance comes from energy companies, a quarter from utilities and 2% from grid companies. Enel is the largest Italian issuer with EUR2.5bn and has pledged to keep supporting the market's development.[20]

In 2017, Intesa Sanpaolo became the first Italian bank to enter the market with a EUR500m green bond earmarked for renewable energy and green building loans. The first public sector deal came with railway company Ferrovie dello Stato Italiane's EUR600m bond, which could well be the first of many, given the EUR94bn in investment identified in the firm's 2017-2026 industrial plan.[21]

Renewable energy leads use of proceeds with 70% of cumulative allocations. In 2017, transport's share reached 20%. The remaining proceeds are distributed between buildings, water and waste.

Diversity of debt instruments is emerging. Energy company Terna issued the first green project finance loan to fund the Melo-Tacuarembo transmission line in Uruguay which will connect renewable energy to the grid. In late 2017, Enel issued a BRL22m (EUR5.6m) green debenture to finance two wind energy projects in Brazil. This is also the first Italian Certified Climate Bond deal.

Over 99% of deals by volume benefit from a second party opinion, with over 60% provided by Vigeo Eiris. In terms of number of deals, Vigeo Eiris and DNV GL both account for 40% of SPOs.

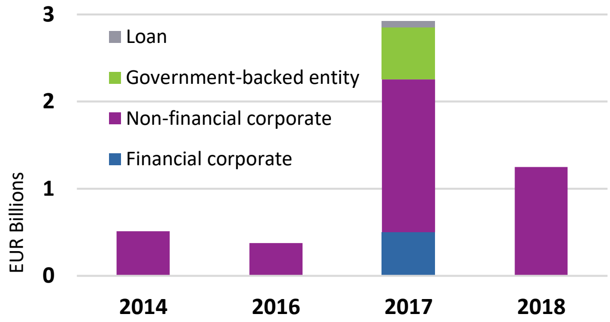
Positive growth outlook for green bonds

Ambitious plans to support green finance. The national dialogue to identify policy opportunities to integrate green finance within Italy's financial system is summarised in the 2016 report *Financing the Future*.[22] As chair of the 2017 G7, Italy placed green finance among the priorities of the agenda. Borsa Italiana joined the Sustainable Stock Exchange Initiative and set up a dedicated segment for Green and Social Bonds in March 2017.[23] Milan joined the International Network of Financial Centres for Sustainability and hosted the inaugural meeting in April 2018.

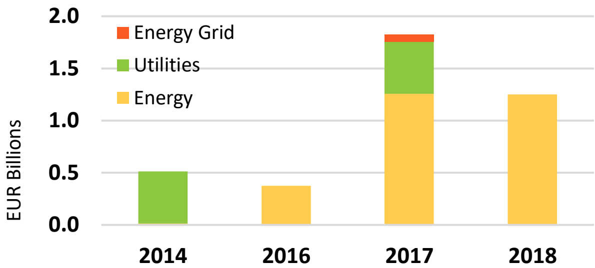
Italy has surpassed its renewable energy target and emissions reduction target for non-ETS sectors. The new national energy strategy[24] has a strong focus on reducing the energy price gap and transitioning to a sustainable energy system in compliance with EU-level Paris agreement objectives. It includes a commitment to phase out coal by 2025.

Market growth opportunities from the energy sector include Dolomiti Energia, Ternienergia and Frendy Energy. Public transport company Trentino Trasporti could become a new issuer. There are rumours of an Italian green sovereign after Consob Commissioner Anna Genovese promoted the idea of issuing green BTP at a finance committee hearing in late September 2017.

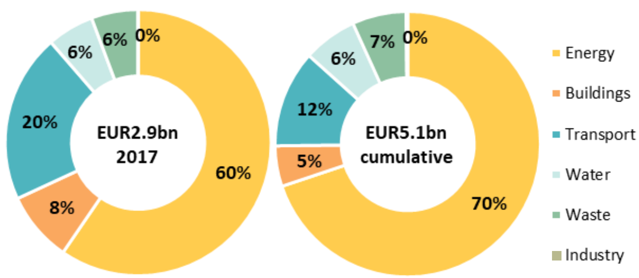
Non-financial corporates drive issuance



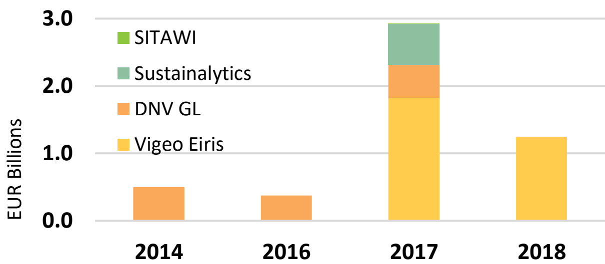
Energy companies 73% of energy sector volumes



Renewables dominate use of proceeds



External reviews on over 99% of issuance



Green funds are on the rise

In January 2018, Foresight's Italian Green Bond Fund became the first Italian bond fund dedicated to financing infrastructure projects.[25] More recently, Eurizon launched the Eurizon Fund – Absolute Green Bonds, the first international green bonds fund run by an Italian asset manager.[26]

Central and Eastern Europe

Cumulative issuance: EUR2.37bn, 7 issuers from 5 countries with sovereign, public sector and corporate issuance

Green bond issuer	Country	Issuer sector	Amount (EUR m)	Bonds	First issue	Latest issue
Nelja Energia	Estonia	Private renewable energy firm	50	1	02/06/2015	02/06/2015
Latvenergo As	Latvia	State energy company	100	1+tap	10/06/2015	14/04/2016
Altum	Latvia	State investment company	20	1	17/10/2017	17/10/2017
Lietuvos Energija	Lithuania	State energy company	300	1	14/07/2017	14/07/2017
Republic of Poland	Poland	Sovereign	1,750	2	20/12/2016	07/02/2018
Bank Zachodni WBK	Poland	Commercial Bank (BBVA Group)	137	1	25/05/2017	25/05/2017
Gen-I Sonce	Slovenia	Private solar energy company	14	1	02/03/2017	02/03/2017

Economic and capital market characteristics differ across Central and Eastern European countries. This could affect the issue potential and the size of the green bond market. Poland has the largest CEE economy and bond market, and FTSE Russell has announced that it will be upgraded to Developed Market in late 2018.[27] The Baltics have small debt markets, with combined outstanding bonds of EUR27bn (see cbonds.net).

Poland's sovereign green bonds account for 74% of total CEE issuance. Energy sector issuers are the next largest category. Proceeds are most commonly allocated to Energy (40%). The region has an excellent record for external reviews with 94% of issued bonds benefiting from a second party opinion. Sustainalytics provided SPOs for 79% of deals by volume, while CICERO provided 59% of SPOs by deal count.

Estonia

First CEE green bond – 2015

Renewable energy company Nelja Energia's EUR50m green bond was issued to finance solar, wind, hydro and biomass projects.

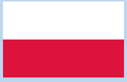
Looking ahead: Estonia's strongest renewable energy potential is in bioenergy-based combined heat and power generation and wind. In 2017, the government authorized county governments to establish regional public transport centres in Southeast Estonia, Tartu and Ida-Viru counties with 2018 budget of EUR10m. There is scope to develop the electric vehicle market. In the railway sector, vanilla bond issuers Elering, Tallina Linnatranspordi and Eesti Raudtee are candidates for green bond issuance. The city of Tallinn could also start leveraging green debt for budget spending.

Lithuania

Largest CEE corporate bond – EUR300m

Energy company Lietuvos Energija's debut green bond was upsized from EUR200m to EUR300m due to high investor demand and is listed on several European stock exchanges. **In May, Lithuania became the second CEE country to issue a green sovereign.** It will fund energy efficiency improvements in multi-apartment buildings.[1]

Looking ahead: Lithuania met its renewable energy targets for 2020 in 2013. Increased use of biomass for heating contributed significantly to this, but more needs to be done to reduce household energy consumption and improve car fleet efficiency. Debut green bond issuance could also come from the rail sector, given the country's advanced plans for rail network improvements.



Poland

First sovereign issuer – 2016

Poland became the first sovereign issuer worldwide with its debut EUR750m green bond. In Q1 2018, it closed a EUR1bn bond. The deals finance renewable energy, clean transport and land use projects which contribute to Poland's low carbon transition.

The other Polish issuer is Bank Zachodni WBK, a BBVA subsidiary, which used a private placement to raise funding for lending on clean energy, green buildings and "climate-smart" equipment.

Looking ahead: Poland's energy sector and economy are heavily reliant on coal, and the country has been opposing more stringent restrictions on coal-based emissions. However, the two green sovereigns are a signal of the government's efforts to invest in green projects. Poland has significantly improved its share of renewable energy, with biofuels and waste representing the biggest share of primary energy supply.

Companies using debt to finance waste to energy projects such as EZO SA could start leveraging green debt. Wind energy has also grown significantly to 7% of total electricity generation in 2015.[28]

Energy efficiency improvements are a high priority for the country to reduce the energy intensity of both industry and buildings. The alignment of new building standards to the EU Energy Performance of Buildings Directive is a positive first step. The country has set a target of one million electric vehicles by 2025, which will also require investments in charging infrastructure. Within the rail sector, companies such as PKP Intercity SA, Miejskie Prezedsiebiorstwo KO are potential green bond issuers.

Latvia

Focus on energy and investment

Latvenergo's green bond closed at EUR76m in June 2015 but was tapped in 2016 for an additional EUR25m. Altum's EUR20m green bond was issued to finance companies operating in renewable energy, green buildings and low carbon transport.

Looking ahead: Latvia has promise for further green bond issuance. It has the third highest share of renewable energy in the EU, most of it coming from hydropower. The Ministry of Transport plans to invest EUR5.1bn in rail improvements. The installation of EV charging stations and improving the environmental credentials of the Riga airport are projects that could qualify for green debt.

Slovenia

Small issuer with big ambitions

Energy supply company Gen-I Sonce became the pioneer of Slovenia's green bond market with its EUR14m green bond financing energy efficiency and micro-solar.

Looking ahead: Slovenia's government has prioritised a transition to a low-carbon energy system and energy efficiency measures in its new national energy programme plan draft.[29] Although nuclear is set to remain a main source of energy, there is a strong focus on increasing generation from hydropower. Slovenia is a small country with a small bond market, so funding requirements and green bond issuance is likely to be ad hoc.

The United Kingdom

Cumulative green bond issuance (2014-Q1 2018): EUR3.3bn, 9 issuers, 11 deals, 17th in global rankings
2017 green bond issuance: EUR1.9bn, 70% up on 2015, 15th in 2017 country rankings
Growth is expected to come from the corporate sector, particularly water and energy utilities

Corporates have been driving issuance

The UK green bond market emerged in 2014 with Unilever's GBP250m issue, earmarked for energy and water efficiency improvements in production, and a GBP4m deal from Belectric Solar, which became the first Certified Climate Bond. The market rose 3.8x in 2015 with 4 issues, and 2017 deal volume reached EUR1.9bn. Given the size of the UK economy and bond market there is plenty of room for growth, particularly from corporates.

Non-financial corporates make up of 56% of the UK's overall green bond market, while Barclays and HSBC are the only two financial corporates to have issued green bonds: EUR500m each. Transport for London, the only government-backed issuer, represents 15% of the total market volume with its GBP400m from 2015.

Proceeds are allocated mainly to low carbon infrastructure. Water is the largest green bond theme and accounts for 29% of overall use of proceeds. Anglian Water's inaugural GBP250m bond will fund water recycling, treatment and resource management projects. It is expected to be a repeat issuer: it has a strong focus on GHG emission reductions and GBP4.5bn of outstanding bonds.

Bazalgette Finance will use the proceeds of its green bonds for a super sewer project which will run 25km along the River Thames and intercept 34 combined sewer overflows. Bazalgette obtained a green evaluation from S&P Global Ratings for its entire GBP10bn MTN programme and has already issued multiple green bonds, the latest in April 2018. To deliver the GBP4.2bn Thames Tideway Tunnel project it is expected to keep returning to the market.

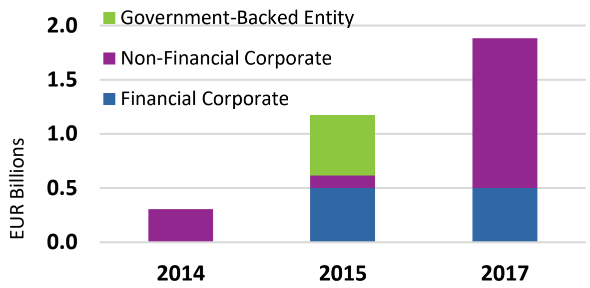
Energy allocations (22%) relate to utility SSE, which will finance an onshore wind farm and Belectric Solar's Certified Climate Bonds. **Building allocations** (20%) relate to Barclays EUR500m bond which refinances mortgages on homes in the top 15% of EPC ratings.

Climate policy and green bond market potential

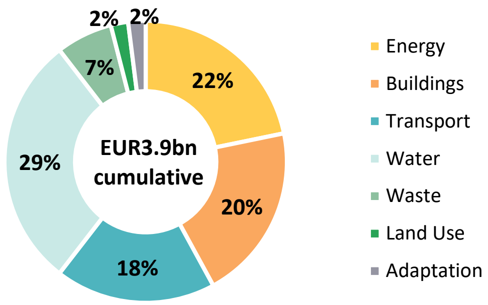
The UK's Fifth Carbon Budget outlines sectoral emission reduction targets. Under the Climate Change Act 2008, the UK Government set up five-year carbon budgets from 2008 to 2050 with the target of reducing greenhouse gas emissions by 80% by 2050 compared to 1990 levels. In the Fifth Carbon Budget proposal, the Committee on Climate Change estimated the sectoral contributions required to meet the budget. The F-gases and Power sectors are expected to reduce emissions by 67-69% from 2015 to 2030; the Waste and Transport sectors, by 43-44%.

The targets echo our expectations for future growth of the UK's green bond market. We identified EUR43bn of outstanding bonds which are not labelled "green" but the assets/business are aligned with the Climate Bonds Taxonomy. Potential new issuers include Network Rail Infrastructure (Network Rail has EUR24bn of bonds), Great Rolling Stock, London and Continental Railways, as well as solar and wind equipment manufacturers. Scottish Power, a subsidiary of Iberdrola (6th largest green bond issuer), has accessed the international bond market already. In the water sector, there is ample room for utilities such as Severn Trent, Northumbrian Water, Yorkshire Water, Wessex Water and Bristol Water to (re)finance assets and projects via green bonds. All have issued internationally, and UK water companies are repeat bond issuers.

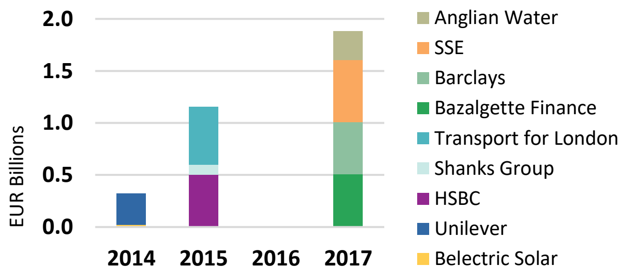
Corporates account for all issuance



Water/wastewater infrastructure leads in allocations



Diverse issuer list but little volume so far



UK Green Finance Taskforce: key recommendations to government[30]

1. Relaunch UK green finance activities through a unified brand
2. Improve climate risk management with advanced data analytics
3. Implement TCFD recommendations on financial disclosure
4. **Drive demand and supply for green lending products**
5. Boost investment into innovative clean technologies
6. Clarify investor roles and responsibilities
7. **Issue a sovereign green bond**
8. Build a green and resilient infrastructure pipeline
9. Foster inclusive prosperity by supporting local actors
10. **Integrate resilience into the green finance agenda**

Action on UKGFT recommendations could well be precipitated by Brexit if the UK loses access to European Investment Bank funding. Since 2000, EIB has provided EUR6bn towards clean energy, for instance. Recent EIB investments include loans for Thames Tideway Tunnel and Merseytravel's New Trains.[31]

Ireland

Small beginnings, big hopes

Gaelectric Holdings' EUR10m private placement deal is the first and so far the only Irish green bond. It financed clean energy.

Already a global hub for green finance

Ireland intends to drive the global growth in green finance and sustainable investment by setting up a global green finance hub. According to Sustainable Nation Ireland, the scale of green finance in Ireland reached EUR28bn, including EUR4bn green UCITS funds managed and domiciled in Ireland, EUR7bn green infrastructure funds, EUR6bn listed green equities and EUR11bn green bonds listed on the Irish Stock Exchange.[32]

Government to invest in climate solutions

Issuance to date may be very low, but Ireland is expected to witness fast growth in debt financing for low carbon infrastructure, as the government has proposed an initial EUR7.6bn of public funds to be invested in climate change mitigation projects from 2018 to 2027.[33]

The commitment is in line with the National Policy Position on Climate Action and Low-Carbon Development, which requires an 80% to 95% carbon reduction by 2050. It is also estimated that the investment will unlock an additional EUR14.2bn of financing from the private sector for energy efficiency, residential buildings, renewable energy and low carbon public transport, as well as water infrastructure.

Potential green bond issuers

Renewable energy pureplay companies such as Greencoat Renewables and Mainstream power could seek financing through green bonds in the future. Kingspan Group, which is specialised in building energy efficiency solutions, as well as companies in other sectors, such as forestry company Coilite, which has implemented sustainable forestry management, and Smurfit Kappa Group, which provides sustainable packaging, could also fund their green assets through green bonds.

Switzerland

Young, but rapidly growing green bond market

Energy company Repower issued the very first Swiss green bond, a green Schuldschein in January 2017, so the market is just a year old. Mid-year, Helvetia Environnement Groupe, a BB- rated company, followed with a CHF75m (EUR67m) green bond for investments in waste management. In late 2017 the Canton of Geneva raised a CHF620m (EUR531m) local government green bond for energy efficiency improvements in 3 hospital buildings. Issuance is picking up and its varied!

In April 2018, three further entities announced green bond deals: Credit Suisse[34], Züricher Kantonalbank (ZKB)[35] and EUROFIMA.[36] ZKB will use the bond proceeds to fund lending on low-carbon Buildings, while EUROFIMA's bond will go toward Transport, specifically rolling stock investments.

There is also investor support: Zurich Insurance, for example, had invested over USD2billion in green bonds as of Q3 2017.[37]

Opportunities for green bond issuance

Energy companies Swissgrid, Etrion SA, Meyer Burger Group and Axpo Holding could be green bond issuers. There is even more potential in the transport sector: for instance Matterhorn Gotthard Verkehrs AG, Schweizerische Suedostbahn AG, BLS AG, Transports Publics de la Region Lausannoise SA, Regionalverkehr Bern Solothurn AG, Transports Publics Du Chablais SA.

Government-backed Emissionszentrale EGW was identified as a potential issuer in the context of financing energy efficiency improvements or new development in social housing.

Aside from the Canton of Geneva, the cantons of Bern, Zurich, Basel-Landschaft, Ticino and Solothurn all raise bonds (each has over EUR1.3bn outstanding), so there could be scope for green bond refinancing for climate aligned investments.

Austria

Benchmark-sized green bonds, but still too few

Austria's first green bond issuer was energy firm Verbund AG. It raised EUR500m in 2014 for energy efficiency projects in hydro and wind power plants. In April 2018, it closed a EUR100m digital green Schuldschein – closed digitally using blockchain technology[38] – and will use the funds for grid upgrades. There has been just one other deal: property bank Hypo Vorarlberg issued a EUR300m green bond in September 2017 to finance mortgages on low-carbon buildings.

Domestic stakeholders are building awareness around SRI investing. The Vienna Exchange introduced a Green and Social Bonds listing in March 2018. Kommunalkredit's EUR300m social covered bond from 2017 also raised awareness among Austrian issuers of the market's potential.

Opportunities for green bond issuance

Energy companies Vorarlberger Illwerke AG, Windkraft Simonsfeld AG, WEB Windenergie AG and EVN Group are well placed to issue green bonds. In the transport sector, OeBB Infrastruktur AG could perhaps become a green bond issuer. Other state-owned entities such as Oesterreichische Kontrollbank AG (OeKB) and Bundesimmobiliengesellschaft mbH (buildings) have been identified as potentials.

Südtiroler Volksbank, for instance, participated in the Green Tagging survey[39] conducted by Climate Strategy Partners and UNEP Finance Initiative in 2017: green bonds become easier to structure when appropriate loans are already tagged.

On the government side, city of Vienna is contender, but perhaps also some of the federal states are likely to have suitable assets / projects to fund. As always, sovereign issuance is a further, large-scale option for funding a wide range of projects aligned to the country's climate agenda.

European green bond market forging ahead

Europe has fostered an engaged and active green bond market.

Early 2018 has already seen the addition of two sovereign green bond issuers (Belgium and Lithuania) and repeat issuance from France and Poland, with expectations for debuts from Sweden, Italy and the UK. Government-backed entities and local government are also upping the ante.

Going forward, we hope to see increasing engagement from the corporate and banking sector, with more varied green bond deals.

Strong political impetus following the release of the European Commission's *Action Plan: Financing Sustainable Growth*[40] is expected to continue driving market evolution and improvement such as through the adoption of a common EU green asset taxonomy in 2019. Banks are expected to start implementing the reporting recommendations set out by the Taskforce for Climate-related Financial Disclosure and green-tagging loans. EU initiatives around energy efficiency such as EeMap and EuroPACE should provide further support.

Endnotes:

Climate Bonds Initiative information and reports:

A. The Climate Bonds Taxonomy is available online at https://www.climatebonds.net/standards/taxonomy

B. Released criteria: solar, wind, geothermal and marine energy; low-carbon transport; built, green and hybrid water infrastructure; and low-carbon buildings with guidance for residential and commercial property and for upgrades. Criteria in or soon to be in public consultation: sustainable forestry; hydro power; and bioenergy.

C. Information on the Climate Bonds Standard is available online at https://www.climatebonds.net/standards/about

D. The series *Green Bond Pricing in the Primary Market* is available online at https://www.climatebonds.net/resources/reports. Search for *Pricing*.

E. *Post Issuance Reporting in the Green Bond Market – Trends & Best Practice June 2017* is online at https://www.climatebonds.net/files/files/UoP_FINAL_120717.pdf

F. *France: Green bond opportunities in France,* April 2018, is available online at: https://www.climatebonds.net/resources/reports/france-green-bond-market-overview-opportunities

G. *German Green Bonds – Update and Opportunities,* May 2017, is available online at https://www.climatebonds.net/files/files/Climate%20Bonds%20Germany%202017.pdf

H. *Nordic and Baltic Public Sector Green Bonds*, February 2018, is available online at https://www.climatebonds.net/resources/reports/nordic-and-baltic-public-sector-green-bonds and *The Green Bond Market in the Nordics*, February 2018, is available at https://www.climatebonds.net/resources/reports/green-bond-market-nordics

Disclosure: Several organisations named in this report are Climate Bonds Partners. A full list of Partners is available online https://www.climatebonds.net/about-us/partners

France

2. Source: http://www.paysdelaloire.fr/no_cache/actualites/actu-detaillee/n/une-ambition-regionale-pour-la-transition-ecologique/

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3. Frankfurt declaration, May 2017, available online at http://deutsche-boerse.com/blob/3031308/6dbe47815720a97c638b9f2906922e0b/data/Frankfurt_Declaration-1.pdf

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8. Source: http://unepinquiry.org/news/german-g20-presidency-launches-greeninvest-platform/

9. Source: https://www.adelphi.de/en/project/opportunities-and-challenges-green-bonds-germany and https://www.voeb.de/de/verband/english

10. Source: https://wirtschaft.hessen.de/presse/pressemitteilung/green-finance-cluster-frankfurt-nimmt-arbeit-auf-0

Netherlands

11. Source: https://www.government.nl/latest/news/2018/02/23/government-kicks-off-climate-agreement-efforts

12. Green Bonds, IUN, available online at https://www.iucn.nl/files/publicaties/green_bonds_iucn_nl_digitaal_.pdf

13. Source: https://www.dnb.nl/en/binaries/Waterproof_tcm47-363851.pdf?2017110615

Belgium

14. Source: http://www.climat.be/files/2515/1844/7394/Green_OLO_08022018_-_presentation.pdf

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15. Source: https://www.amundi.lu/professional/Local-Content/News/IFC-and-Amundi-successfully-close-world-s-largest-green-bond-fund

16. Source: http://www.fdc.lu/en/

17. Source: http://www.luxembourg.public.lu/en/actualites/2017/06/28-climate-finance/index.html

Nordics

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21. Source: https://www.fsitaliane.it/content/fsitaliane/en/investor-relations/industrial-plan-2017---2026.html

22. Source: https://wedocs.unep.org/bitstream/handle/20.500.11822/16801/Financing_the_Future_EN.pdf?sequence=1&isAllowed=y

23. Source: http://www.borsaitaliana.it/obbligazioni/greenbonds/socialbonds.en.htm

24. Source: http://ec.europa.eu/eurostat/statistics-explained/index.php/Europe_2020_indicators_-_Italy

25. Source: http://www.foresightgroup.eu/news/foresight-s-italian-green-bond-fund-achieves-first-close-at-70-million/

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Central and Eastern Europe

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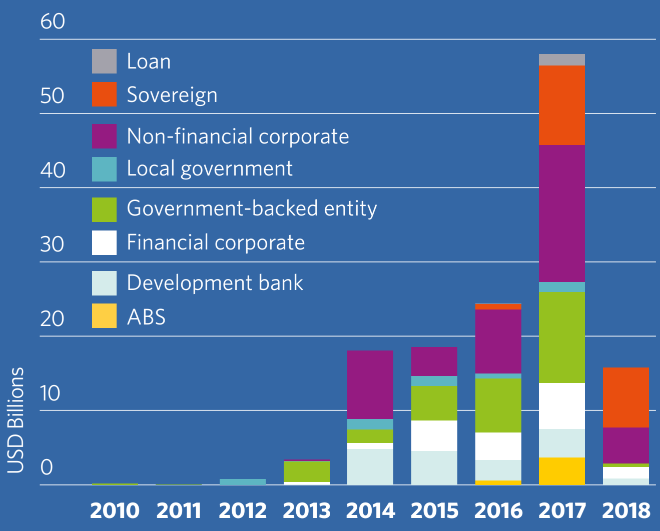
Conclusion

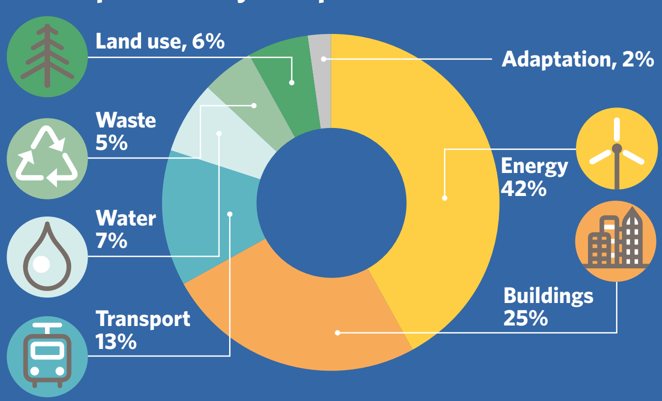
40. The plan and related information are available online at https://ec.europa.eu/info/publications/180308-action-plan-sustainable-growth_en

Europe at a glance

Strong green bond market growth



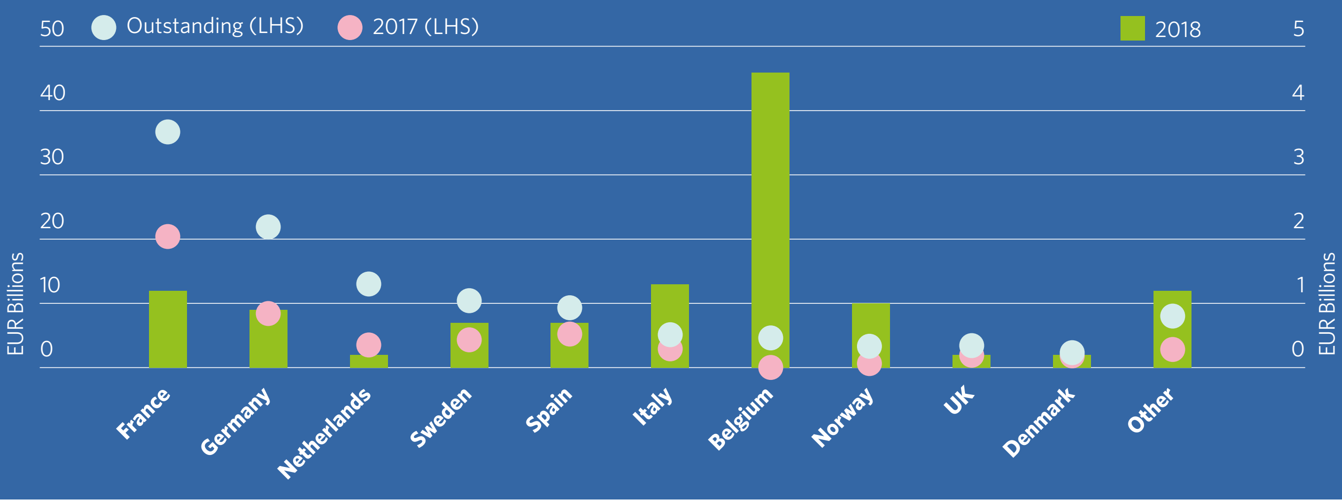
Use of proceeds by European issuers - 2017



Top 10 green bond issuers

	Issuer Name	Deals	Outstanding (EUR)	First Issue
1	**KfW**	**17**	13.0bn	22-Jul-14
2	**Republic of France**	**3**	9.7bn	31-Jan-17
3	**Iberdrola**	**10**	7.4bn	24-Apr-14
4	**Engie**	**4**	6.2bn	19-May-14
5	**TenneT Holdings**	**8**	5.0bn	4-Jun-15
6	**Credit Agricole CIB**	**101**	4.3bn	25-Feb-13
7	**Kingdom of Belgium**	**1**	4.5bn	5-Mar-18
8	**EDF**	**5**	4.5bn	27-Nov-13
9	**NWB Bank**	**7**	3.7bn	3-Jul-14
10	**Nordic Investment Bank**	**16**	2.6bn	2-Feb-10
	Top 10	**172**	**60.9bn**	
	Top 10/Total Europe	**42%**	**53%**	
	Total Europe	**421**	**117.9bn**	

Green bond issuance by country



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Source data from Thomson Reuters Eikon, climatebonds.net and other parties. All figures are rounded.

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