

Green Securitisation

Unlocking finance for small-scale low carbon projects

Securitisation and the low-carbon transition

Securitisation enables companies and lenders to sell off existing financial assets to free up capacity for more business. It is the process through which an issuer creates financial instruments – asset backed securities or ABS – backed by financial assets such as mortgages or lease receivables. The ABS bonds are sold to investors who receive a return drawn from the cash flows of the underlying assets.

By aggregating the funding into a common structure, securitisations enable institutional investors to finance small-scale assets and small- and medium-size businesses.

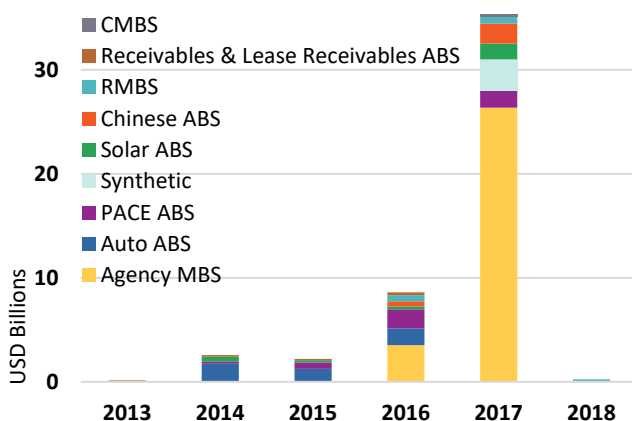
A securitisation can be defined as **green** when the underlying cash flows relate to low-carbon assets or where the proceeds from the deal are earmarked to invest in low-carbon assets.

The underlying collateral pool would typically comprise financial assets such as:

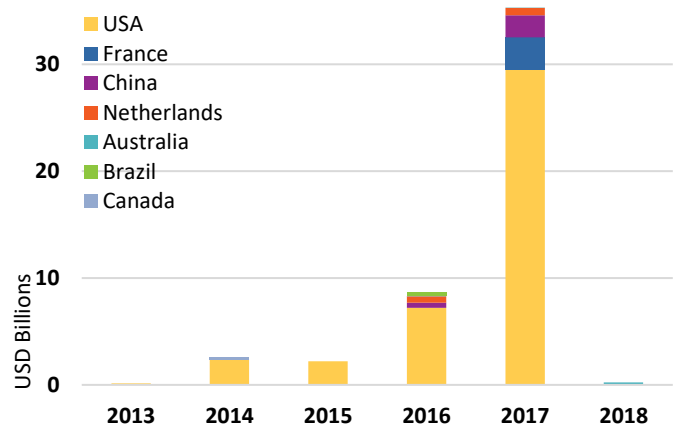
- mortgages on certified buildings, e.g. under LEED, BREEM, Energy Star or other building standards
- mortgage financing for energy efficiency upgrades
- loans/leases on electric vehicles and hybrids
- loans/leases on solar and wind assets
- loans/leases on equipment, e.g. EV charging stations
- loans for energy efficiency improvements
- loans to green (pure-play) SMEs

Green ABS issues to date include primarily mortgage backed securities but also PACE ABS backed by loans for energy efficiency improvements, solar and auto ABS.

ABS issuance by type



ABS issuance by country



All data as of 9 March 2018. Source: Climate Bonds Initiative

This briefing focuses mainly on securitisation as a form of financial aggregation. However, there are alternative structures for bundling small-scale, low-carbon assets to access the bond market more efficiently. The most common aggregators are banks and local government, but non-financial corporates can create a funding vehicle too. We provide examples in this briefing.

Synthetic ABS is the largest ABS issue to date

What is it? In a synthetic ABS, the issuing bank retains ownership of the loans it wants to use as collateral for the deal but transfers the associated credit risk to an investor via the ABS structure. The bank continues to provide specialised loan servicing, but by selling the risk, it frees up regulatory capital. This allows the bank to originate new loans. In a green synthetic, proceeds are earmarked for new green lending.

Who's issuing? Credit Agricole CIB's USD3bn synthetic ABS from 2017 is the only one so far. It was privately placed with US-based Mariner Investment Group and was secured on a variety of loans, including project finance on renewable energy.

Future developments: Synthetics can be very useful to lenders and the market as the freed-up capital can be used to create a multiplier effect in lending and scale up green funds available to small- and medium-sized businesses and projects. As the first deal shows, this can be done in scale.

Aggregation alternative for local government financing

What is it? Aggregation is an effective way for local governments to finance investments that are not big enough to justify standalone bond issuance as well as to pool resources to retain experienced specialists for deal execution. Local government funding agencies in the Nordics and NWB in the Netherlands are the best examples: their mandate is to finance municipalities and government-backed entities at competitive rates.

Who's issuing? LGFAs from Norway, Sweden, Finland and Denmark as well as Dutch bank NWB have all issued green bonds, raising USD9.5bn between them since 2010.

Future developments: Similar structures could be explored in other jurisdictions. Government guarantees can provide credit enhancement for aggregators backed by municipalities that are not sufficiently creditworthy. Such structures facilitate needed access to the bond market and lower cost financing for urban infrastructure development.

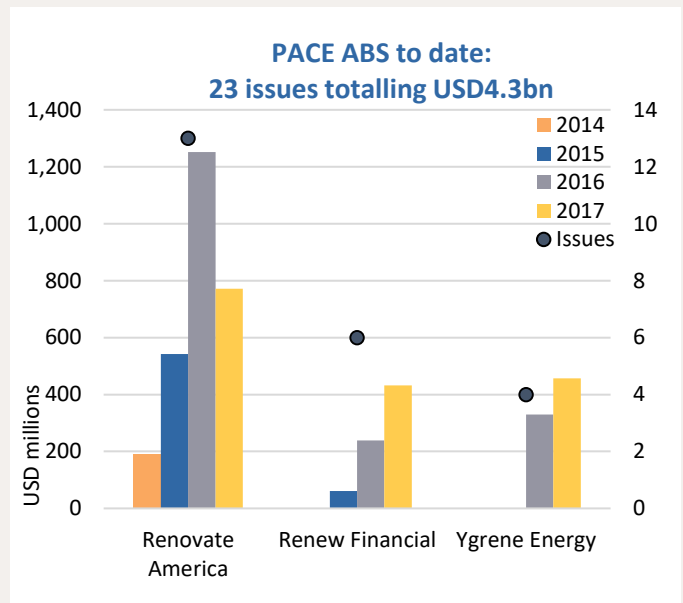
PACE ABS

What is it? The US Property Assessed Clean Energy (PACE) model is an innovative mechanism for financing energy efficiency and renewable energy improvements. PACE loans fund the upfront cost of energy improvements on residential and commercial properties, and are paid back over time by property owners through property tax bills. Sponsoring states implement legislation to collect loan repayments through property tax bills and redistribute them to lending agencies. The funding and credit risk are passed onto ABS investors through the securitisation of the loans. Each ABS frees up lending capacity for new loans.

Who's issuing? Three PACE financing providers from California have issued green ABS backed by PACE loans.

Future developments: Similar legislation for local governments to incentivise energy efficiency improvements can be implemented elsewhere.

The Climate Bonds Initiative is part of the EuroPACE Project consortium – an H2020 project seeking to implement PACE financing in Europe through a city-wide pilot in Spain.



Solar ABS

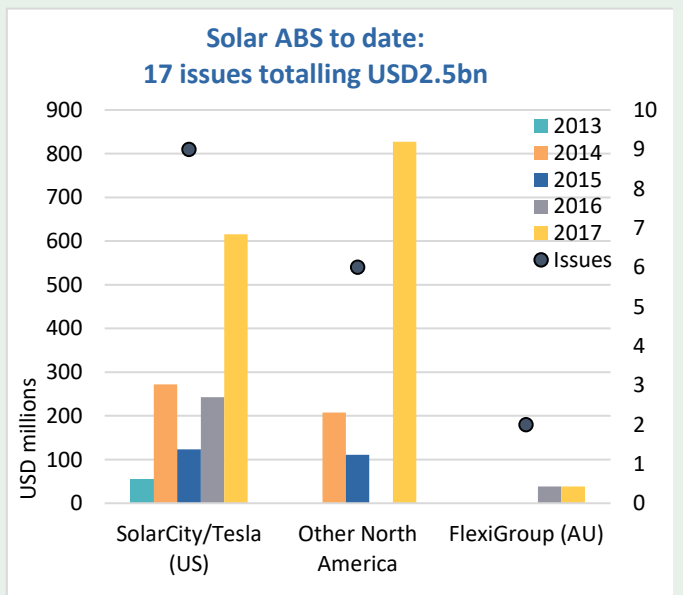
What is it? Solar ABS are securitisations secured on cash flows from solar assets. Most deals are backed by lease payments and power purchase agreements. Some are backed by loans extended to fund the acquisition and installation of solar panels. A variation on solar ABS is Hannon Armstrong's ABS secured on ground lease receivables from solar and wind farms – see Other Receivables ABS below for details.

Who's issuing? 89% of Solar ABS by deal volume have been issued in the US. SolarCity (now Tesla Energy) issued the first one in 2013: a USD54m deal backed by cash flows from power-purchase agreements for the electricity generated by a bundle of residential rooftop PV installations of around 5,000 customers. In total, the company has placed 9 solar ABS deals.

In Canada, Northland Power's 2014 ABS is backed by revenue from the 20-year feed-in tariff contract between the company's solar projects and the Ontario grid.

FlexiGroup issued the first Australian deal with a green ABS tranche. It refinanced a pool of loans extended to customers for residential rooftop solar. The bond was Certified under the Climate Bonds Standard for Solar assets. It priced 5bps lower than the pari passu non-green tranche issued as part of the same ABS.

Future developments: 2017 was a record year for solar ABS with three new US issuers. Solar ABS has been used primarily to refinance residential rooftop solar, but commercial solar has significant scaling potential. Wind ABS can also work. Changes in or uncertainty about the availability of subsidies and the level of feed-in tariffs can impede issuance.



In Europe, the uptake of renewable energy ABS has been hindered by the lack of standardised documentation, uncertainty around feed-in tariffs and insufficient volume of green assets from individual banks or leasing companies. Financial warehousing which aggregates loans and/or leases from multiple sponsors would help scale up the market.

Emerging markets such as India are also considering ABS for solar loans to finance ambitious targets for renewable energy capacity development within banks' lending capacities.

Bringing aggregation to emerging markets: the Climate Aggregation Platform (CAP)

Aggregation in emerging markets can help increase access to lower cost financing for small-scale assets such as renewable energy projects. CAP is being developed by the United Nations Development Programme, the Global Environment Facility and Climate Bond Initiative to grow a pipeline of standardized projects and expand the investor base in East Africa and South-East Asia.

Mortgage backed securities

Issuer Name	Country	Green issues	2016	2017	2018
Fannie Mae	USA	1221 MBS	\$3.5bn	\$26.4bn	
Obvion: Green Storm	Netherlands	2 RMBS	\$595m	\$667m	
NAB RMBS Trust	Australia	1 RMBS tranche			\$233m
CSAIL Commercial Mortgage Trust	USA	1 CMBS notes		\$72m	
Jaishi Capital	China	1 CMBS		\$124m	

Agency MBS

What is it? US government agencies Fannie Mae and Freddie Mac purchase a significant volume of mortgage pools from originating lenders and refinance them in the MBS market. Fannie Mae's Multifamily Green Initiative Program targets mortgages to certified low-carbon buildings and financing for energy and water efficiency improvements of at least 20%. Freddie Mac has a similar program.

Who's issuing? Fannie Mae issued USD26.4bn of labelled Green MBS in 2017, significantly above the USD3.5bn issuance volume achieved in 2016. It is the largest green bond issuer for 2017.

Future developments: The Green Initiative sends a strong signal to lenders, incentivising best practice such as certification for buildings and lending for energy efficiency. Freddie Mac may also start labelling the MBS it issues which are secured solely on loan pools purchased under its Green Advantage program.

With time, more stringent prerequisites to enter the program can help ensure the building stock is aligned with a 2°C world.

RMBS

What is it? Residential mortgage-backed securities are ABS deals secured on large pools of residential mortgages.

Who's issuing? Dutch lender Obvion issued the first green RMBS in 2016. Together with its Green Storm 2017-1, the mortgage lender has now placed USD1.3bn of green RMBS. In 2018, National Australia Bank issued an AUD2bn RMBS with an AUD300m green tranche. All three green issues have been Certified against the Climate Bonds Standard for Low-Carbon Buildings (Residential).

Future developments: A common barrier to scaling up green RMBS is the lack of data or access to energy performance data. In some countries such as the UK, pressure from lending institutions to make data available has resulted in new green bond transactions.

The Energy efficient Mortgages Action Plan (EeMAP) – an H2020 project led by the European Mortgage Federation – is seeking to create a standardised and cheaper energy efficient mortgage. A successful pilot could facilitate RMBS.

CMBS

What is it? Commercial mortgage-backed securities are ABS deals secured on commercial mortgages. Commercial asset classes include offices, shopping centres, multi-family housing, logistics, hotels, etc.

Who's issuing? CSAIL, a joint platform of the US operations of Credit Suisse and Natixis, issued the first CMBS deal with green subordinated notes. They are secured on a LEED Platinum certified office building on Wall Street in New York City.

But it is China that recorded the first green CMBS – a three-tranche deal secured on a LEED Gold certified office building owned by China Energy Conservation and Environmental Protection Group (CECEP).

Future developments: There is significant potential in the US for green CMBS due to the common use of CMBS to finance property. This is less likely in Europe due to unfavourable capital treatment. The availability of competitively priced alternative funding, e.g. covered bonds, can also limit green CMBS issuance.

Covered bonds can be an alternative to RMBS and CMBS for banks

What is it? Covered bonds are highly-regulated securities with superior credit ratings. They achieve lower funding cost than unsecured debt thanks to a dual recourse structure where bond investors have a general claim against the issuer, as well as a claim over a dedicated 'cover' pool of assets. Cover pool composition is regularly monitored and reported.

Who's issuing? Green covered bonds under German *Pfandbrief* legislation were first issued by BerlinHyp in two EUR500m deals in 2015 and 2016 (USD1.2bn in total). Deutsche Hypo followed with a EUR500m deal in 2017.

In 2018, SpareBank 1 Boligkreditt, the covered bond vehicle of an association of Norwegian savings banks, issued a EUR1bn green covered bond with a residential mortgage cover pool.

Future developments: There is a lot of issuance potential for banks that tag and monitor certified and low carbon property given the size of the covered bond market in Germany and the Nordic countries.

Luxembourg recently issued legislation on covered bonds for renewable energy. Extending the covered bond structure to other low-carbon assets can encourage more green issuance.

Pooled funding for corporates

What is it? A funding platform can be created by non-financial corporates to facilitate access to the bond market, as is the case with by UK green bond issuers Anglian Water and Thames Tideway (Bazalgette Finance). It can also be used to pool funding requirements.

Who's issuing? Sweden's SFF is a joint venture between five listed property companies. It has raised SEK5.6bn (USD640m) in 11 issues since 2015. This does not preclude owners from accessing the bond market directly: co-owner Faberge does this through its own Green Medium Term note (MTN) bond program.

Other receivables ABS

Any stream of receivables or revenues can be used to secure an ABS deal as long as the revenue is predictable enough to be modelled and valued. Diversification is a key benefit for investors as it reduces the risk of losses from any one project or borrower. This makes pools of lease payments, small loans, bills and fee collections ideally suited. The structure can be employed both by financial institutions and corporates.

Green ABS may be relatively new with a limited number of deals so far, but the diverse range of financial assets and structures used bodes well for the growth of this type of debt instrument.

Receivables ABS - China

Chinese issuers have issued 11 ABS deals totaling USD2.4bn and secured on receivables from wind turbines and other renewable energy equipment leasing, public transport, water and waste management: by far the most diverse sector range among countries with green ABS issuance.

One of the more intriguing examples is provided by Beijing Enterprises Water Group. The company operates 19 water treatment plants under takeover-operate-transfer (TOT) or build-operate-transfer (BOT) contract with 16 municipalities.

Its green ABS is backed by water treatment service fee receivables. The proceeds are allocated to another nine water infrastructure projects that fall into Pollution Prevention, Resource Recycling and Adaptation categories under PBoC's green bond catalogue.

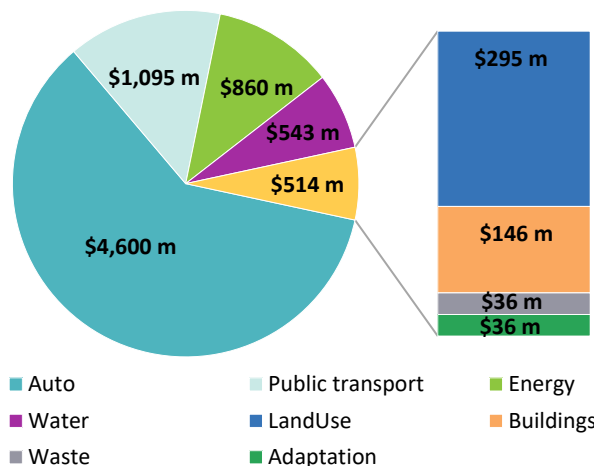
Another example comes from TGOOD. Its four-tranche ABS is secured on receivables from switchgear and electrical substation equipment with the proceeds are earmarked for the installation of EV charging stations across China.

Bill receivables ABS

In 2014 the State of Hawaii issued GEMS 2014-1, an ABS deal secured on the green infrastructure fee collected by three state utility companies via electricity bills.

The bond raised funds for the Hawaii Green Infrastructure Loan Program, so it can provide loans to finance the installation of renewable energy power systems and for energy efficiency projects.

Other receivables ABS asset mix:
18 issues totalling USD7.7bn



Ground lease ABS

Hannon Armstrong's first green ABS from 2013 is secured on ground lease receivables from 78 solar and wind farms.

Leasing land to renewable energy operators carries lower risk than owning and operating the solar and wind farms.

Pooling the leases creates diversity of income streams, a prized feature of securitisations, which further lowers deal risk.

Auto ABS

Toyota Finance has issued USD4.6bn in three green ABS secured against the cash flows from existing car leases and with the proceeds destined to finance new leases and loans exclusively on hybrid and electric vehicles. Using existing 'brown' assets to free up capital for more 'green' ones is a key component of financing the low-carbon transition.

An improvement on the structure would be to issue an Auto ABS secured solely on low- to zero-emission vehicles and use the proceeds to originate even more green assets in the form of vehicle loans and leases.

Agribusiness credit rights: CRA ABS

Brazil's innovative securitisation instrument has helped farmers and cooperatives secure financing for the production, sale, processing or industrialisation of agricultural products.

Credit rights deals have been successful thanks to the competitive loan pricing they offer farmers, the asset-liability match and the tax exemptions for both investors and issuers.

In 2016, Suzano Papel issued the first – and so far only – green CRA ABS of BRL1bn (USD295m). Brazilian peer and fellow green bond issuer, Fibria, has also issued CRA deals but not labelled green. Tagging issuance as green can help attract SRI investors.