Can US municipals scale up green bond issuance? Likely, “yes”

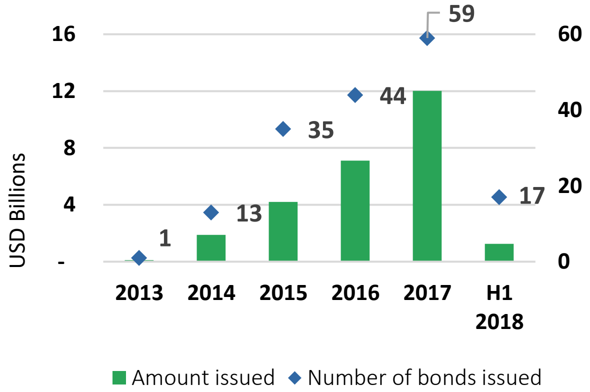
We conducted a scoping exercise and identified USD250bn of outstanding bonds from specialised US municipal issuers, which are climate-aligned, but not labelled ‘green’. Refinancing needs from these issuers offers an opportunity to label bonds and consolidate US municipals’ position in the green bond market.

The first US municipal green bond was issued in 2013 by the Commonwealth of Massachusetts. Over the next four years, issuance went up and up to reach USD12bn in 2017, or 27% of the total US green bond issuance for the year.

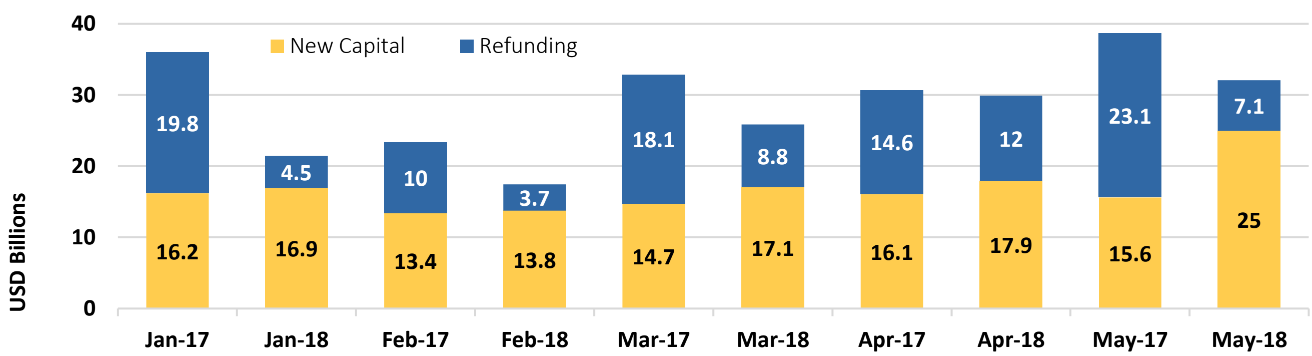
Green bond issuers from 31 US states have issued to date. The top 3 states account for 64% of US Muni green bond issuance: New York ranks first (USD7.2bn issued as of end Q2 2018), followed closely by California (USD6.9bn). The third largest is the pioneer: Commonwealth of Massachusetts (USD2.9bn).

However, US Muni green bond issuance dropped in H1 2018. This is in line with a wider trend in US Muni issuance. The passing of the Tax Cuts and Jobs Acts of 2017 by Congress in December 2017 resulted in major alteration to US tax law, and that has impacted the issuance of refunding bonds in particular, according to SIFMA monthly data.

After years of rapid growth, US Muni green bonds hit a roadblock in H1 2018



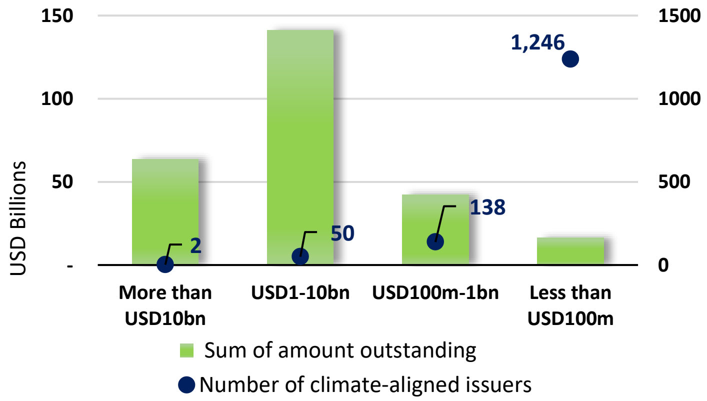
Tax Cuts and Jobs Acts of 2017 has resulted in a drop in refunding issuance volume in 2018



Source: SIFMA

SIFMA data shows a very clear trend: US Muni issuance decreased 22% from Jan-May 2017 (USD162bn) to Jan-May 2018 (USD127bn). While issuance of new capital bonds has increased 19%, refunding bond issuance has plummeted by 58%, dragging overall numbers down. The trend is even more apparent for Q1 2018: refunding bond issuance was 65% below the Q1 2017 level.

US Muni pure-play climate-aligned bonds



So, how can US Munis scale up green bonds?

We screened the EMMA website to identify climate-aligned US municipal entities in the water, waste, transport, renewable energy and land use sectors, i.e. key sectors under the Climate Bonds Taxonomy. We acknowledge that there are many entities issuing bonds for climate-aligned projects but for the purpose of this scoping exercise, we honed in on specialised agencies with more than 95% of their revenue derived from climate solutions (pure-plays).

We identified 1,436 issuers with USD264bn in bonds outstanding. These include USD14bn in green bonds outstanding already issued by 23 pureplay US Muni issuers. Over half the volume (54%) is attributable to 50 pure-plays with USD1-10bn of outstanding bonds.

Issuers from the transport and water sectors account for most of the related bonds. The two issuers with outstanding debt exceeding USD10bn are also from these sectors and account for a quarter of volume. The smaller issuers are primarily from the water industry.

At USD170bn, water accounts for 64% of the identified climate-aligned bond universe. It also features the highest number of climate-aligned issuers: 1,141 pure-plays. Transport comes in second with USD78.5bn outstanding (30%), with the remaining 6% (USD18.5bn) split between waste, energy and land use. Transport sector climate-aligned issuers have, on average, the largest amount of bonds outstanding (USD1.5bn), while water sector pure-plays have, on average, USD149m of bonds outstanding.

Several of these climate-aligned entities are already green bond issuers. Their peers could follow their path by entering the green bond market. Resilience projects, waste management and land conservation are all represented by the identified US Muni issuers, but underrepresented in the green bond market.

This scoping exercise identifies potential US Muni green bond issuers by considering the upcoming bond maturities of at large pure-play agency and other municipal entities.

Water is the largest climate-aligned theme

Water

Of the 1,141 climate-aligned issuers, 14 have already issued green bonds including the City of San Francisco Public Utilities Commission, which issued Certified Climate Bonds under the Water Criteria of the Climate Bonds Standard. The top 5 issuers, excluding green bond issuers, by amount outstanding are:

1. **New York City Municipal Water Finance Authority**, via the New York City Water & Sewer System (USD26bn outstanding, New York): The Authority delivers more than 1bn gallons of water each day to the taps of over 9m people. It is a regular bond issuer: its last deal was in June 2018. The maximum deal size is over USD1bn; the average – USD388m. Bond proceeds fund primarily improvements in the water supply system and upgrades to wastewater treatment facilities, but also green infrastructure and tackling pollution caused by combined sewer overflows.

2. **Los Angeles Department of Water and Power** (USD9.8bn, California): About USD420m of its bonds mature within a year. This presents a green bond refinancing opportunity. The Department's maximum deal size is USD760m; the average – USD366m. It last issued in April 2018.

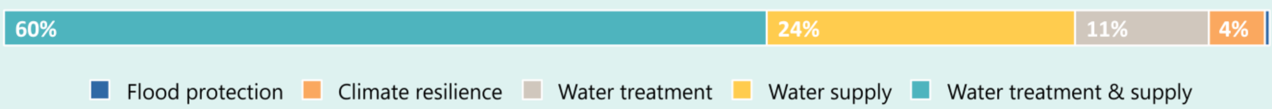
3. **Metropolitan Water District of Southern California** (USD4.4bn, California): About USD450m of its bonds mature within tqo years. USD355m is the maximum deal size to date. The last issuance was in June 2018.

4. **Puerto Rico Aqueduct and Sewer Authority** (USD3.5bn, Puerto Rico): The Authority has issued bonds up to USD1.8bn.

5. **Atlanta Department of Watershed Management** (USD3.5bn, Georgia): In March 2018, Atlanta's Mayor announced that the Department will issue the first publicly-offered Environmental Impact Bonds. The proceeds will fund approx. USD12.9m worth of green infrastructure projects intended to improve the resilience of the city's neighbourhoods that have been devastated by flooding in recent years.

   The Department will have significant refinancing needs as about USD1bn of bonds mature in two years' time. The largest volume issued by the entity is USD1.2bn; the average – USD590m. It last issued in June 2018.

95% of USD170bn water sector US Muni bonds used for water treatment and supply



The majority of issuers are specialised in providing water treatment and supply services (347 entities). Just under 5% of bonds were issued by entities focusing on climate resilience. Among them is **Oklahoma Water Resources Board**, which has extensive programs and policies associated with climate resilience, from the implementation of groundwater studies to drought monitoring and floodplain management.

One of the latest projects by **Albuquerque Metropolitan Arroyo Flood Control Authority** dealt with the identification of detention ponds and the construction of channel lining and contributed to the reduction of local drainage problems and decreasing the area's vulnerability to flooding. Their latest bond of USD12.5m, issued in June 2018, states that proceeds will be used to improve the Authority's flood control system.

Transport

52 climate-aligned issuers are part of this sector. It accounts for USD78.5bn of bonds outstanding. Four local governments have already issued green bonds and three of them – New York MTA, Los Angeles County MTA and BART – have issued Certified Climate Bonds under the Low Carbon Transport Criteria of the Climate Bonds Standard. The top 5 issuers, excluding green bond issuers, by amount outstanding are:

1. **Massachusetts Bay Transportation Authority** (USD5.8bn, Massachusetts): The MBTA has issued several sustainability bonds since September 2017, demonstrating the its interest in addressing environmental and social challenges in the mass transit industry, including promoting greater accessibility, targeting energy efficiency improvements and implementing climate resilience measures. Approximately USD460m of bonds will have to be repaid by June 2020, which could provide an opportunity for the authority to issue a green bond. Its average bond volume is USD777m.
2. **Dallas Area Rapid Transit** (USD4.4bn, Texas): DART's extensive network moves over 220,000 passengers a day across their 700-sqm service area. About USD800m of bonds mature by June 2019, we expect BART to refinance the debt within the next year. BART's maximum deal size to date is USD1bn; but its outstanding bonds average is USD428m.
3. **Chicago Transit Authority** (USD4.3bn, Illinois): Their fleet includes about 1,500 rail cars and nearly 1,900 buses which are becoming more energy efficient and produce fewer emissions thanks to recent replacement efforts. The Authority's maximum deal size is USD1.9bn, and the average volume USD391m.
4. **Regional Transportation District of Denver** (USD3.4bn, Colorado): The District's maximum deal size is USD475m. Its last bond (March 2017) was linked to the FasTracks project, a multi-billion-dollar comprehensive transit expansion plan to build 122 miles of new commuter rail and light rail and 18 miles of bus rapid transit. All fall within the Climate Bonds Low Carbon Transport Criteria.
5. **Metropolitan Atlanta Rapid Transit Authority** (USD3.1bn, Georgia): The Authority last issued in June 2018, and its largest deal was USD400m.

Some 99% of outstanding bonds have been issued by entities in charge of a mix of mass transit services such as metro, light rail, bus, rail, tram and/or bicycle.

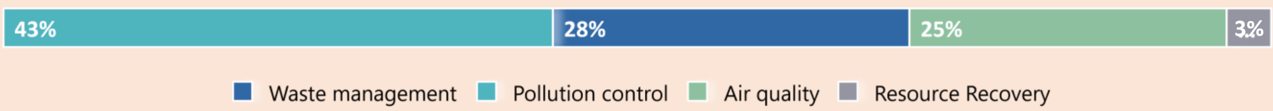
The remaining 1% is shared amongst rail-only services (the largest issuer in the dataset is **Sonoma-Marin Area Rail Transit District**), and authorities dedicated to bus services (largest issuer: **Roaring Fork Transportation Authority**).

Waste

65 climate-aligned issuers are part of the waste sector, which accounts for USD8bn of bonds outstanding. California Pollution Control Financing Authority has issued a green bond. The top two issuers, excluding green bond issuers, by amount outstanding are:

1. **Ohio Air Quality Development Authority** (USD2bn, Ohio): The Authority's bond from December 2017 financed the construction, acquisition and installation of a recycled linerboard and corrugating medium mill, as well as related recycling facilities.USD240m of bonds from this entity will mature within two years.
2. **Palm Beach County Solid Waste Authority** (USD1.1bn, Florida): USD400m of bonds will have to be repaid by the Authority within the next 2 years. The Authority's maximum deal size to date is USD600m; and its deals average USD314m.

71% of the climate-aligned waste agencies outstanding bonds are linked to solid waste management



A sub-sector analysis shows that 28% of the outstanding amount was issued from the waste management divisions of municipalities. Issuance from authorities focusing on broader pollution control has contributed 43% and those on air quality have contributed 25% to outstanding sector issuance. The remainder has been placed by resource recovery entities.

The 65 agencies identified in the waste sector are climate-aligned and their issuance would qualify for inclusion as green bonds if the issuers were to add a green label. Green bonds from the waste sector have been historically underrepresented, and labelling would give more visibility to US municipals activity in this area.

Land Use

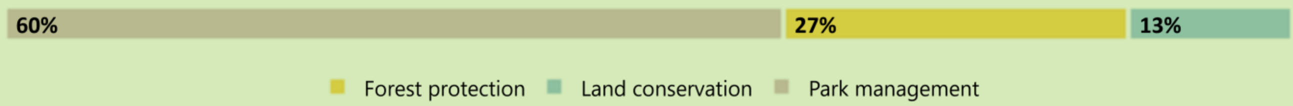
171 climate-aligned issuers are part of the land use sector, which accounts for USD4.8bn of bonds outstanding. Midpeninsula Regional Open Space District, East Bay Regional Park District and Martha's Vineyard Land Bank have issued green bonds. The top 2 issuers, excluding green bond issuers, by amount outstanding are:

1. **Florida Department of Environmental Protection** (USD1.2bn, Florida): Approximately USD200m of bonds will have to be repaid before June 2020. The Department raised USD350m in its largest deal. A bond from March 2017 helped refinance the Everglades Restoration project.

2. **Chicago Park District** (USD827m, Illinois): The Chicago Park District owns more than 8,800 acres of green space, making it the largest municipal park manager in the nation.

The sub-sector graph below shows that 60% of the outstanding amount are represented by park management authorities; 27% by forest protection and 13% by land conservation agencies.

Park management agencies account for 60% of the land use climate-aligned oustanding theme



Energy

We identified 7 climate-aligned municipal issuers from the energy sector and they account for USD2.6bn of bonds outstanding. New York State Energy Research and Development Authority, Berkshire Wind Power Cooperative, and Trinity Public Utilities District have issued green bonds.

The smaller apparent size of the sector is due to the fact that it is harder to identify pure-plays with the chosen methodology of the study. It is very likely that, in fact, the sector could be larger than the land use or waste sectors.

The top issuer, excluding green bond issuers, is **Tuolumne Wind Project Authority** (USD511m, Washington): The Tuolumne Wind Project, in operation since 2009, has 62 turbines with a total generation capacity of 136MW. That is enough to power approx. 44,000 households each year. About USD200m of bonds will mature by June 2019. The Authority's maximum deal size is USD428m, the average is USD286m.

In terms of sub-themes within energy, 76% of the outstanding bonds come from issuers financing a mix of renewable energy; 23% are from municipals directly involved with wind energy power generation, and the remainder from hydro.

Of note is the overlap between the energy and buildings sectors. In a few cases, issuers such as the **Missouri Clean Energy District** and the **Clean Energy Development Board of the City of St. Louis** have provided access to financing for residential and commercial property energy efficiency and renewable energy projects through Property Assessed Clean Energy ("PACE") programmes.

Key takeaways

This research has uncovered many avenues for US municipals to continue dynamizing the green bond market, especially in the areas of waste, energy and land use where the market has not yet seen regular green bond issuance.

Whilst several US municipals have issued green bonds in all these sectors, entities identified in this study could build on their peers' early work to grow the market. Underrepresented states could also seize the opportunity to issue a green bond and fully democratise the US municipal market.

The high-level results from this scoping study have shown significant potential for green bond issuance from states already ahead in the market but also from underrepresented ones such as Ohio, Colorado, Texas and states still to come to the market such as Georgia. The Commonwealth of Puerto Rico has also shown promising potential in this regard.

It is worth noting that these sectors are also being financed by municipalities that fund a variety of projects without setting up dedicated authorities, departments and similar divisions. Green labelling could be even more beneficial for them to signal their climate-conscious policies and programmes.