

Green America: The Prospects For The Development Of The Green Bond Market In The U.S.

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Green America: The Prospects For The Development Of The Green Bond Market In The U.S.

By mid-2017, American corporate issuers had already gone to market with approximately \$18 billion of green bonds, while municipal issuers had issued about \$18 billion as well, cumulatively. This number increased sharply from previous years, and we anticipate the final 2017 tally to be higher still. However, in the grand scheme of things, the U.S. still boasts a relatively small share of cumulative green bond issuances worldwide (about \$221 billion outstanding as of summer 2017), and the U.S. total is dwarfed by the wider universe of domestic debt issuance. But, curiously, all this comes as the U.S. continues to see dramatic reductions in carbon emissions and while a mass transformation of the American generating grid continues.

Overview

- Despite significant interest in renewable energy in the U.S., the green bond market has remained relatively small.
- A lack of near-term clarity on regulatory policy may be contributing to this limited growth.
- However, longer term, we believe there are favorable trends that could signal the growth of the green bond market.
- To date, we have performed Green Evaluations for five issuances in the U.S., but not all are actually labelled green bonds.

Challenges In The U.S.

Despite substantial growth in the green bond market abroad, specifically in Europe and China, the market domestically has struggled to take form for a variety of reasons, but we note that some of these could change in years to come with new developments in the market.

First, whereas EU nations have long benefitted from a transparent and enduring carbon reduction framework, the U.S., at least on a federal level, has had its debate on climate change mitigation characterized by partisan disagreement. With political partisanship belying the scientific consensus on the cause of and dangers faced because of climate change, it has remained difficult to establish a cohesive set of principles for carbon mitigation and adaptation. The failure of the Waxman-Markey Bill in 2009 led to an increased politicization of climate change, which has ultimately slowed progress toward a successful resolution.

This has most recently manifested itself in the 2017 rollback of the Clean Power Plan, as well as the continued jeopardy facing the extension of the investment tax credit and production tax credit, which have long been critical to the development of the wind and solar industries in the U.S. Still, despite the urgency of the matter, we anticipate that a more strict federal policy on climate change is unlikely to develop during the next few years, which we consider to be

critical to the decarbonization of the American and global economies. Climate change policy in the U.S., such as it is, remains highly fragmented and largely driven by state-level considerations.

In addition, several years ago, we expected that a growth vehicle for green bonds in the U.S. would be the then-burgeoning yieldco industry (see "Credit FAQ: Standard & Poor's Takes A Look At The Emerging YieldCo Financing Vehicle," published Sept. 8, 2014). By definition, these companies anticipated sharp growth in capacity and promised rapid distribution growth based on contracted renewable assets, which would be acquired or otherwise developed largely in a debt-funded fashion. To date, NRG Yield Inc., TerraForm Power Inc., and Pattern Energy Group Inc. have each issued green bonds. However, the industry faltered for more than 18 months due to a bevy of governance concerns and ill-advised acquisitions (and failed acquisitions) by large industry players, resulting in downgrades of existing issuers and a stalling of new entrants.

Two particularly high profile failures were those of the SunEdison-owned yieldcos, TerraForm Power and TerraForm Global. The two issued green bonds in 2014 and 2015, respectively, but have more recently had difficulty accessing the capital markets and expanding their portfolios in line with previous expectations due to the bankruptcy of their parent, SunEdison Inc. in April 2016, amid myriad governance and reporting issues, and the event, along with Atlantica Yield's parent issues, cast a pall on the industry.

But more recently, TerraForm Power and TerraForm Global have been scheduled for acquisition by the more stable and conservatively managed Brookfield Renewable Energy. We expect growth to resume within the developer industry during the next few years, albeit at a more modest pace, and, with it, there could be an appetite for green bond financing. Already, Pattern Energy Group, a comparatively small wind-focused issuer, has gone to the market with a \$350 million issuance. We recently assigned our 'BB' corporate credit rating to NextEra Energy Partners, a comparatively large yieldco with a broad array of assets. It hasn't issued a green bond, but the new rating could signify a resurrection of the yieldco model in the U.S., which lends itself to green bond issuance.

A Solution In The Works?

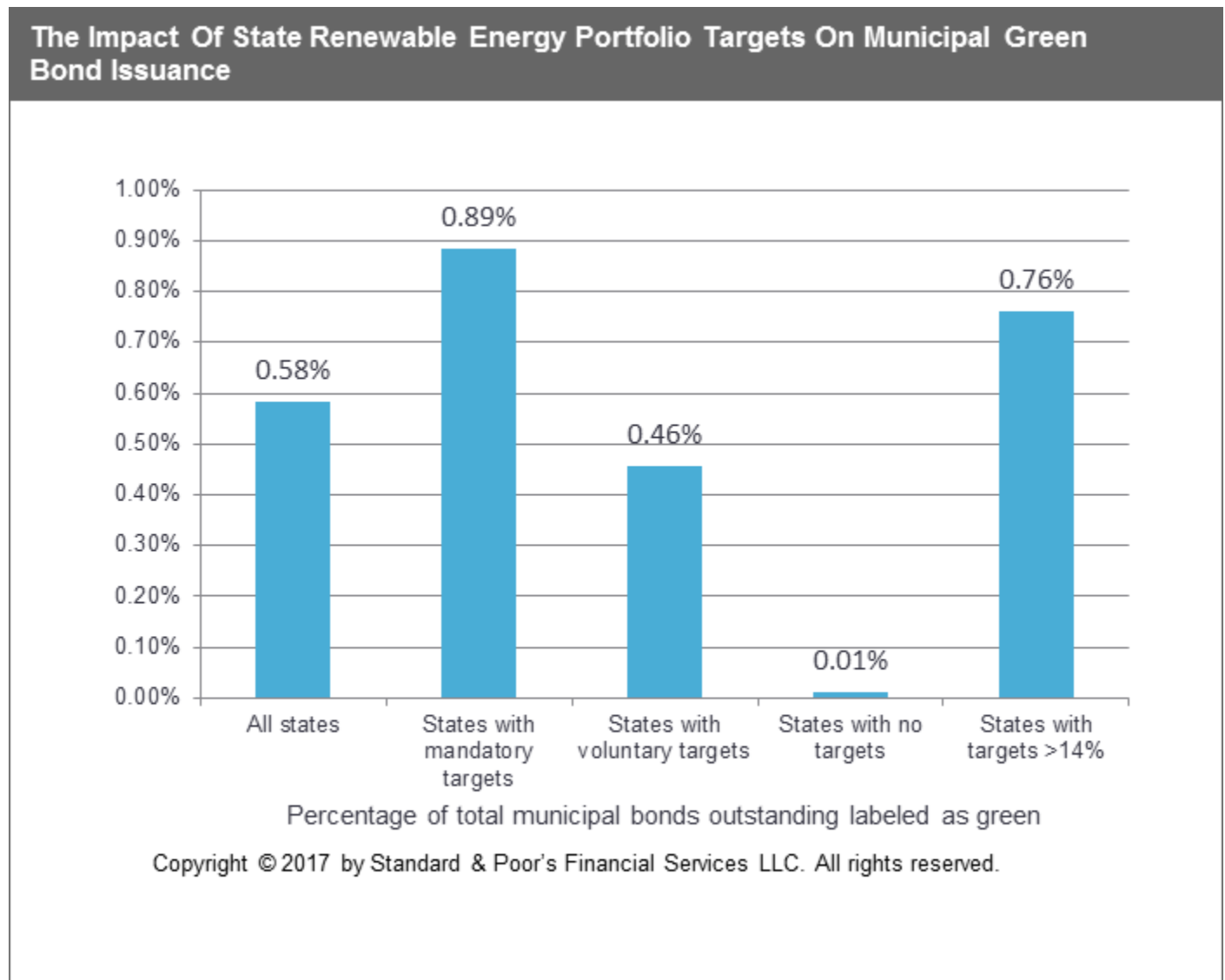
Despite these historical limitations, we expect the green bond market in the U.S. to flourish in coming years.

Amid a mass rollback of federal environmental regulations on the heels of President Trump's unexpected 2016 victory, capped by the announced exit of the U.S. from the Paris Climate Agreement, a groundswell of support for more proactiveness on carbon mitigation emerged at the state, municipal, and corporate levels. Consequently, we expect that state renewable portfolio standards will increase as more progressive states (notably, New York, Massachusetts, and California) seek to establish leadership in climate change, both in reducing their own emission levels and in helping to bolster the industries that support climate change efforts elsewhere; the jobs argument remains a very salient one.

As a result, these heightened renewable portfolio standards are likely to drive continued investment in new renewable energy projects, regardless of the continuation of federal tax incentives; a recent Department of Energy study attributes much of the decline in costs of renewables to research and development spurred at the state level. And if recent history is any indication, much of this investment will have to come from investor-owned utilities and public

power entities that have to meet the standards.

Chart 1



The profile of these types of companies makes them ideal candidates for issuance of green bonds. In most cases, investor-owned utilities, with relatively low operating risk and virtually no competitive risk, can (and do) sustain high debt balances and indeed need mammoth balance sheets and an appetite for debt to support their substantial generating and transmission assets. The majority of these companies are also investment-grade in the U.S. and Canada, granting them significant access to capital markets.

But they are also holders of long-term assets (with a typical combined cycle gas turbine having a life of 30 years and renewable assets slightly less), and as a consequence, they're more exposed to sustainability and climate risk than are other issuers. They have an investment-grade investor base that is increasingly wary of these concerns and scrutinizes climate risk with growing resolve. Current political conditions notwithstanding, savvy investors realize that climate risk

is inherently a long-term one, and one that could be thrust into the fore again under a different administration.

Even where utilities are not as inclined to develop renewable assets on balance sheet, they're likely to have to enter into power purchase agreements to attain renewable portfolio standards. As mentioned earlier, we anticipate that renewable developers and yieldcos could see a resurgence and resume acquiring or developing assets to satisfy these requirements with improved access to capital markets.

So, going forward, we expect that issuers will consider how they can best demonstrate their green credentials to the investment community, and one potential form that this could take would be green bond issuances. While competition for market share in the utility space may be limited, competition for capital remains fierce, and we expect sustainability to be a differentiating factor; to date, the largest three issuances have been from Westar Energy Inc., Southern Co., and MidAmerican Energy Co.(notably, we have not done green evaluations on any of these).

In addition, a less developed U.S. green bond market, to date, isn't necessarily indicative of diminished interest in sustainable investments. Certainly, even amid continued discord over climate change and renewable tax credits, the renewable market in the U.S. has grown dramatically, albeit at a slower clip than in other economically comparable countries. We analyze the trajectory of this renewable energy fervor in a follow up article.

Green U.S. Projects: Can They Work?

Importantly, under our Green Evaluation framework, we evaluate not strictly labelled green bonds, but rather any financing tool that may have green attributes, whether in its environmental outcomes or its requirements for reporting. Financings in the U.S. may face certain quirks that would complicate their analysis under this approach.

Under our Green Evaluation Methodology, a strong green evaluation score is generally supported by stringent rules on selecting green assets, appropriate use of proceeds, and reporting on environmental factors--all of which overlaps with existing green bond principles. As mentioned earlier, our evaluation does not merely assess those issues that are green bonds proper, but, by design, a wider variety of financings that have environmental impacts. This potentially includes project financings; while project financings do not necessarily subscribe to green bond requirements (and predate them by several decades), they often have some overlapping features surrounding reporting and are specifically designed, in most cases, to prevent leakage of funds for general corporate purposes. The project finance structure has evolved substantially since its inception several decades ago, but has become critical in the financing of large scale infrastructure assets in recent years, and this has come to include green projects. The very mature and developed project finance market in the U.S., as well as the well-established rule of law and absent sovereign risk, continues to make this a popular format for financing renewable assets with contracted cash flows, which are themselves ideal candidates for green bond financing.

Table 1

Project Finance Features Versus Green Bond Principles Features	
Project finance feature	How it could impact green evaluation
Ring-fencing	Would generally aid governance score by ensuring sponsor woes wouldn't affect financing.
Cash flow waterfall	Would improve the governance score by ensuring funds did not leak from structure and were used strictly for named green financing.

Table 1

Project Finance Features Versus Green Bond Principles Features (cont.)	
Project finance feature	How it could impact green evaluation
Asset security	Probably not a significant impact, since many green financings are investment-grade (and not likely to default).
Limited scope of activities	Positive from a governance perspective, it likely prohibits funds (especially those not immediately expended) from later being used on non-green projects.
Asset level reporting requirements	While not often geared toward environmental reporting in a conventional project finance framework, items such as capacity factors and availability can be indicative of environmental impact and improve the transparency score.

In addition, we consider net environmental benefit in formulating our green evaluation scores. In the U.S., this can be particularly pronounced in parts of the country that have, to date, been slow to decarbonize. This would include some states in the Mountain West region, Rust Belt, and Southeast. The consequence of this resistance to decarbonization is that the "baseline" grid carbon level remains comparatively high, against northeastern or West Coast states, or European economies. This, in turn, means that incremental renewable generation will have a relatively higher impact and potentially result in better scoring in this respect.

Added to this, in our calculation, local capacity factors for specific resources are considered--that is, a wind farm in a regime with substantial resources will contribute to decarbonization to a greater degree and could attain a better Green Evaluation score as a result. Certain states within the U.S. have performed quite well in wind resource adequacy, while others have not. The current renewable energy incentive scheme in the U.S., chiefly the production tax credit, pushes developers to chase wind resources rather than merely prompting investment. Much of the new generation capacity in the U.S. during the next four years is expected to be renewable.

Green Evaluations In The U.S.

To date, we have evaluated five American issuances under our Green Evaluation Tool. In total, we have approximately seven public green evaluations, with funds evaluated totaling over \$7 billion. While each of the issuances has earned a score of E1, the highest under our methodology, how they've arrived there is a bit nuanced.

Cross Sound Cable (E1/87). Our first Green Evaluation, released in May 2017, was unique, because it assessed a bidirectional transmission cable under our renewable energy framework. Despite not being a labelled green bond, it fared well under governance and transparency due to its project finance structure and commitment of its sponsor to reporting on environmental impact. In addition, the cable effectively supplanted more carbon intensive generation in New York with cleaner New England generation, derived largely from hydroelectric power and wind.

Brookfield White Pine Hydro (E1/90). Also not a labelled green bond, White Pine's high score also stemmed from a substantial environmental benefit within its geographic footprint. In addition to funding the refinancing of a large hydro portfolio, we noted that excess funds from the initial \$475 million could be used for other renewable ventures within this pure play issuer (Brookfield Renewable Partners).

DC Water (E1/90). We viewed governance quite favorably based on its requirements for regular reporting of fund disbursements and environmental impacts, over the very long life of the financing. The transparency score also benefited from stringent criteria used to select projects that were eligible for funding.

Capital Region Water (E1/87). This financing received an excellent mitigation score due to wastewater treatment being at the top of our water hierarchy, combined with moderate water stress in Pennsylvania. The single-purpose mission of Capital Region Water and the segregation of funds for capital investment supported the governance score, and the entity reports on some key environmental measures in its financial documents and other regular communications to the public.

Greater Orlando Aviation Authority (E1/78). The \$997 million of funding issued by the authority will partially finance construction of a new terminal complex that has been designed and will be built to LEED standards. The transaction obtained a strong mitigation score, resulting from significant anticipated avoided carbon emissions in a state with an electric grid possessing a medium-high carbon intensity. While the financing possesses a strong governance framework, the absence of a commitment to publicly report the environmental impacts of the new complex contributed to a satisfactory transparency score.

As illustrated above, renewable portfolio targets can be an effective driver of new green bond issuances at the municipal level. The first green bond was issued in 2007 and there was little standardization (or need thereof) until the market exploded in 2014. Growth has continued to soar through 2016 as the market grew 60% year over year to \$116 billion in annual issuances, most of which remains unlabeled. As the market grows, at least anecdotally, there has become increasing demand for a Green Evaluation Tool, especially from asset managers who consider environmental, social, and corporate governance (ESG) criteria, which as of year-end 2015 represented one in every five dollars under professional management in the U.S., or about \$8.72 trillion. In our discussions with investment professionals around the globe, we have concluded that while the mandate for investing in sustainable assets has gotten steeper and is likely to continue to grow, analyzing sustainability risk requires a skill set that goes beyond what has been traditionally required for investment analysis.

Now let's consider renewable energy investments, which produce returns for the private sector in addition to the public good they serve in reducing CO₂ emissions. Since Iowa led the way in 1983, 29 states have passed renewable portfolio standards requiring utilities to sell a specified percentage or amount of renewable electricity. Hawaii and Vermont have the highest standards, at 100% and 75%, respectively, while other states like South Carolina passed voluntary standards as low as 2% or no standards at all. As states increase renewable energy generation, grid stability becomes challenging due to the intermittency of wind and solar energy. Instability is already an urgent problem in Germany and California, where renewable mandates have been most aggressive. Unless battery storage technology improves dramatically, some states may soon find themselves unable to increase renewable capacity without major risks. As a result, the marginal benefit of developing renewable energy projects in states with less renewable capacity is greater than in states like California. Hence, a higher Green Evaluation Score.

As described, demand for green bonds dramatically outstrips supply, which is one reason green bonds could trade at premium prices once a more robust supply of data points is available. The greener the evaluation score, the better pricing a state or municipality might receive to build its water treatment facility or utility. Because investors in green bonds are spread around the world, but the primary beneficiaries are local, municipalities have an incentive to issue the greenest bonds they can, which may be easier to do in less affluent states. And because all municipal bonds are tax deductible, everybody wins, even investors.

In our follow up article to be published shortly, we look at the renewable energy market more holistically. We discuss renewable portfolio standards and investment tax credits and what these portend for renewable energy in the U.S.

Related Research

- Trumped Up: How The Clean Power Plan's Exit Could Affect The Power Sector, June 28, 2017
- Withdrawal Symptoms: What Trump's Paris Agreement Decision Could Mean For American Generators, June 2, 2017
- Beyond Green Bonds: Sustainable Finance Comes Of Age, April 26, 2017
- Green Evaluation Analytical Approach, April 26, 2017
- Credit FAQ: Standard & Poor's Takes A Look At The Emerging YieldCo Financing Vehicle, Sept. 8, 2014

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