

GREEN BONDS AS AN OPTION FOR ILLINOIS STATE AND LOCAL GOVERNMENTS

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We want to express our appreciation to the state and local government officials who participated in interviews for this study.

Green bonds are like traditional bonds, but they have been labeled “green” to let investors know that the proceeds will be used to finance environmentally beneficial projects. State and local governments have issued green bonds for a variety of purposes, such as water and wastewater projects, public transit, and energy-efficient buildings. This article provides an overview of green bonds, including green bond standards, external review options, and the market response to green bonds. It presents an overview of green bonds issued by six state and local governments within the State of Illinois and discusses factors that governments may want to consider when making decisions related to green bonds.

INTRODUCTION

Green bonds are a type of debt used to finance capital projects that are beneficial to the environment. They are similar to traditional bonds in that they have the same security; however, they are labeled “green” to signify that the bond proceeds will be used to finance environmentally beneficial projects. Green bonds may be of special interest to individuals, investment funds, and others who have an interest or mandate to invest in projects that help the environment or climate. Worldwide private firms, banks, sovereign and subnational governments, and development banks have issued green bonds.

This article focuses on the issuance of green bonds by state and local governments in the United States with a special emphasis on green bonds issued in Illinois. It starts with background information on green bonds, including an overview of the green bond market, green bond standards, and the voluntary use of green bond external reviewers. It then presents a discussion of green bond issuance by six governments in Illinois. The article concludes with a discussion of key

factors for state and local governments to consider when deciding whether to issue green bonds and what approach to use if they pursue that option.

BACKGROUND ON GREEN BONDS

Green bonds are a relatively new type of debt. The first green bonds were issued by the European Investment Bank in 2007 (labeled “climate awareness bonds”)

and the World Bank (labeled “green bonds”) in 2008. In 2011, Yuba Community College District, in California, issued the first green bonds in the United States (Harrison & Muething, 2021). Other early issuers in the United States included Fannie Mae in 2012 and the Commonwealth of Massachusetts in 2013.

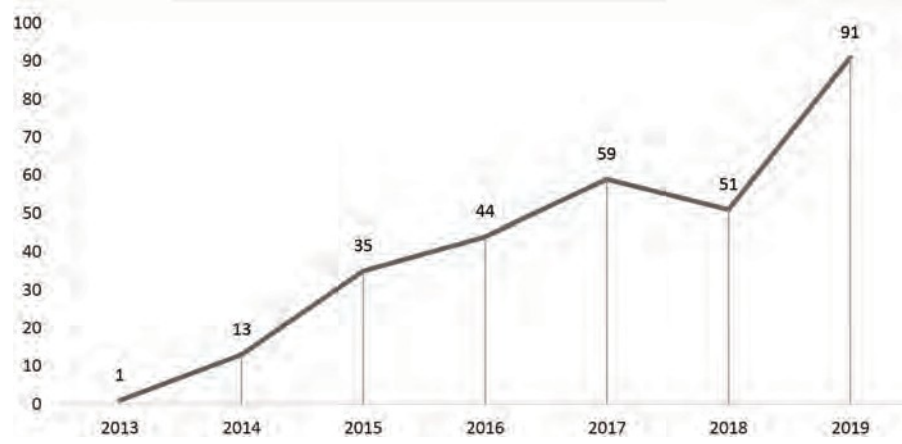
The issuance of green bonds has grown significantly over the years. From 2007 through the end of 2020, the total cumulative green bond issuance worldwide was about \$1.1 trillion, including more than 1,400 issuers from 71 countries (Jones, 2021b). The volume of green bond issuance in 2020 alone was about \$290 billion, with the largest uses being energy, buildings, and transportation (Jones, 2021b). Green bond issuers in North America accounted for about 21% of the 2020 issuance. Major U.S. green bond issuers in 2020 included Fannie Mae (\$13 billion) and the New York Metropolitan Transportation Authority (\$4 billion), which respectively ranked the largest and seventh-largest issuers worldwide in 2020 (Jones, 2021a).

The number of state and local governments issuing green bonds in the United States increased from 13 in 2014 to 91 in 2019 (see Figure 1). The annual volume issuance reached \$15 billion in 2020 (see Figure 2), which was about 3% of the total volume of state and local government bonds issued that year (Denis, 2021). The issuance dropped significantly in 2018 because an issuer moved a large green bond issue that was planned for 2018 into 2017 prior to the elimination of tax-exempt advance refundings in 2018 (Environmental Finance, 2018).

State and local governments have issued green bonds to finance capital projects such as public transit, energy-efficient buildings, water and wastewater projects, and renewable energy projects. The major investors in state and local government green bonds are individuals who hold the bonds directly or through mutual funds (Denis, 2021). Some of these investors may be attracted to state and local government tax-exempt bonds in general, and some may specifically prefer green bonds. Other investors, such as foreign investors or pension funds, also may be interested in green bonds but may be more likely to

FIGURE 1

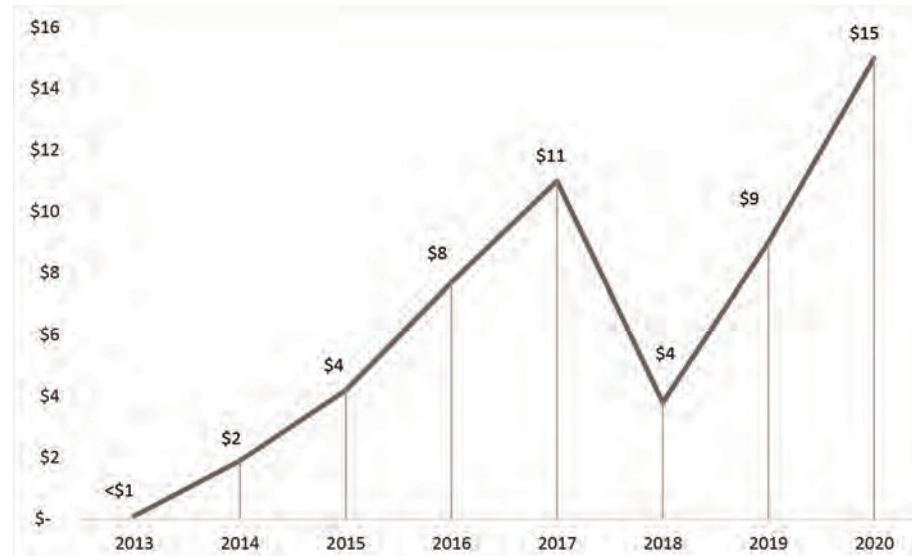
NUMBER OF STATE AND LOCAL GOVERNMENT GREEN BOND ISSUES, 2013-2019



Source: DeGood (2021)

FIGURE 2

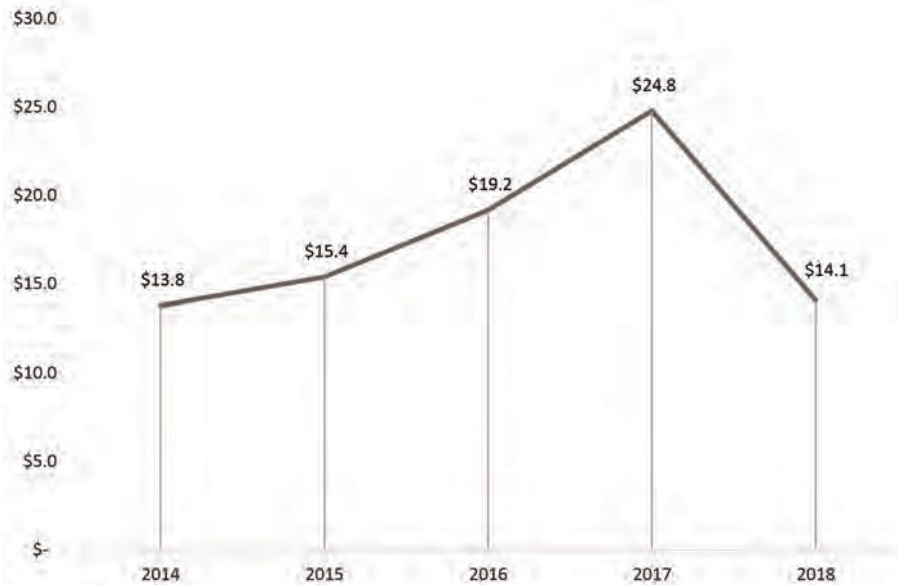
VOLUME OF STATE AND LOCAL GOVERNMENT GREEN BOND ISSUES, 2013-2020 (in billions)



Source: Harrison & Muething (2021)

FIGURE 3

ILLINOIS STATE AND LOCAL GOVERNMENT BOND ISSUANCE, 2014-2018 (in billions)



Source: Mergent Municipal Bond Database

invest in taxable green bonds because they do not benefit from the tax-exempt status of state and local government bonds.

The green bond market is generally unregulated, which some believe has hindered the market stability needed to grow the market (Banahan, 2019). Private entities have developed green standards, and some countries, as well as the European Union, have established or are in the process of establishing green bond guidance or requirements. In the United States, adherence to green bonds standards is voluntary.

Two of the most widely known standards are those promoted by the International Capital Market Association (ICMA) and the Climate Bonds Initiative (CBI):

- ICMA is a consortium of investment banks that seeks to promote debt securities markets that support sustainable economic growth and development. With input from bond issuers, investors, and environmental groups, ICMA developed Green Bond Principles in 2014 and updated those principles in 2016 and 2018. The Green Bond Principles address

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four major areas: (1) the use of bond proceeds; (2) the process and criteria used to select projects; (3) the management of bond proceeds; and, (4) reporting (International Capital Market Association, 2018).

- CBI is an international investor-focused nonprofit entity that

advocates for climate change through the financial markets. In 2014, CBI released standards and the Climate Bonds Certification program that incorporated ICMA's Green Bond Principles and identified the types of use of proceeds by sector that might be consistent with the Paris Agreement goal of 2 degrees Celsius warming. CBI's program includes independent verification by approved verifiers, certification by the Climate Bonds Standards Board, as well as reporting requirements (Climate Bonds Initiative, n.d.).

Some governments that issue green bonds also reference one or more of the 17 sustainable development goals that United Nations member states adopted in 2015 as part of the *2030 Agenda for Sustainable Development* (United Nations Department of Economic and Social Affairs, n.d.). Some of the goals most related to green bonds include number 6, clean water and sanitation; number 7, affordable and clean energy; and, number 11, sustainable cities and communities.

Green bond issuers that do not participate in the Climate Bonds Certification program can self-identify their bonds as green or seek a second-party opinion from an external reviewer. The reviewer can assess the issuer's adherence to all or portions of ICMA's Green Bond Principles, such as the "greenness" of the proposed projects and a post-issuance analysis of whether the green bond proceeds were spent on green projects. The use of an external reviewer can help prevent green washing, which occurs when an issuer labels a project as green even though the project does not benefit the environment.

Prior research has found that government issuers act rationally when making decisions about the use of financial certification related to the bond market, i.e., issuers seek to minimize the total costs, including interest payments and the costs of certification (Kriz, 2000). This would suggest that issuers will use external reviewers for green bonds when it is cost advantageous to do so, i.e., when the savings in interest from an external review is more than the cost of the review, including staff time and the contract price. Issuers also could be influenced by other factors, such as the desire to send a signal to the community or to be a leader in sustainability.

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External reviews have been less common for state and local government green bonds than for other types of green bonds (Denis, 2021). CBI reports that the percentage of state and local government green bonds that did not have an external review fell from 49% in 2019 to 27% in 2020 (Harrison & Muething, 2021).

One of the major questions that arises regarding green bonds is whether they

have a lower interest rate than other bonds. During the period of July 2014 through August 2021, the yield to maturity for the S&P Municipal Green Bond Index, on average, was two basis points (0.02 percentage points) higher than the yield to maturity for the S&P Municipal Bond Index (S&P Dow Jones Indices, 2021). The S&P Municipal Green Bond Index tracks bonds that have a green label and a clear disclosure of the use of proceeds or bonds whose compliance with the Green Bond Principles has been independently verified.

Scholars have conducted research studies that compare interest rates for green bonds versus non-green bonds after controlling for other factors that may influence interest rates. In a review of 15 research studies, MacAskill et al. (2021) report that 56% of the studies that addressed the primary market and 70% of the studies that addressed the secondary market found that green bonds sold at a green premium — that is, investors paid more for the green bonds, which resulted in lower interest costs for the issuer. MacAskill et al. also report that green bonds were more likely to have lower interest costs for the issuer when they were issued by a government, were investment-grade, and followed green bond standards, including reporting procedures.

Studies that specifically address state and local government green bonds have reported mixed results. One study found that after controlling for other factors, green bonds had an after-tax yield that was five to seven basis points (0.05–0.07 percentage points) lower than traditional bonds and that the effect was much larger for green bonds that were Climate Bonds Certified (Baker et al., 2018). However, another study found that green bonds did not have lower interest rates and that the Climate Bonds Certified designation appeared to make little substantive difference in pricing (Larcker & Watts, 2020). The first study compared interest rates on green bonds versus non-green bonds for all state and local government bonds during a specified time, while the second study compared green and non-green bonds issued by the same issuer at the same time.

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STATE AND LOCAL GOVERNMENT GREEN BOND ISSUANCE IN ILLINOIS

The focus now turns to state and local government bonds in Illinois. Bonds designated for a variety of purposes, such as water and sewer projects, public transit, renewable energy projects, and projects that conserve energy or water (e.g., buildings, housing developments, street lighting), could qualify as green bonds.

However, as of mid-2021, there were relatively few issuances of green bonds by state or local governments in Illinois. Based on a review of databases on state

and local government bonds, we identified 13 governments in Illinois that had issued green bonds as of June 2021. Seven of those governments obtained a green bond assessment as a result of a municipal bond insurance company that provides that service at no cost when the bonds are insured by that company and have eligible green projects (Build America Mutual, June 2021). The other six governments elected to issue green bonds independently of the decision to purchase bond insurance. Those issuers included (1) the Metropolitan Water Reclamation District of Greater Chicago, (2) Chicago Public Schools, (3) the City of Decatur, (4) the Illinois Finance Authority and the Illinois Environmental Protection Agency, (5) DuPage County, and (6) Will County.

The rest of this section discusses the green bond issuances by those six governments, including: who initiated the idea to issue green bonds; the ways in which the issuance of green bonds differed from the issuance of traditional bonds; the market response to the green bonds; and, whether the issuers would consider green bond issuances in the future. We reviewed official statements, green bond reports, news stories, and government websites for the six issuers. We also requested interviews with officials from each of the governments, which resulted in interviews with government officials from four of the six issuers.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) was the first municipal green bond issuer in the Midwest. MWRD issued \$225 million in green bonds in December 2014 and an additional \$104 million in June 2016. MWRD provides wastewater treatment and stormwater management for the City of Chicago and 128 suburbs in Cook County. The green bonds helped finance the tunnel and reservoir plan (TARP), which helps reduce flooding

and pollution caused by combined sewer overflows; stormwater management programs and projects; resource recovery projects; and, water reclamation plant expansions and system improvements (Metropolitan Water Reclamation District of Greater Chicago, 2014 and 2016).

An MWRD interviewee said that when MWRD issued a request for proposals for the 2014 bond issue, most of the underwriter responders recommended green bonds to distinguish MWRD bonds from other bonds. The interviewee explained, “Investors are tough on us. We pay a higher interest rate than comparable entities due to being located in Illinois and Chicago. We view green bonds as further defining our projects and a way to help us market our bonds.”

The identification of projects for the green bonds was a time-consuming

process, according to the MWRD official. The underwriter helped identify environmental aspects to consider, and MWRD officials also looked at different entities that had issued green bonds, especially the Commonwealth of Massachusetts. MWRD finance officials and engineers developed categories for the projects that would be eligible for the green bond designation. They decided not to include refunding bonds as part of the green bonds because they did not have adequate documentation to determine if the original projects would qualify as green projects.

One of the main differences in marketing the green bonds was that the engineers were more involved. The interviewee explained, “The engineers explained the projects in an understandable manner, and the investors enjoyed hearing about the projects. This was a welcome break from the past emphasis on pensions.”

The 2014 green bonds were two times subscribed (demand exceeded the amount of bonds being sold) while the 2016 green bonds were a bit less than two times subscribed, according to the MWRD interviewee. A case study of the 2014 sale reported that the transaction attracted orders from 28 different investors, including domestic bond funds and retail managers/investors with socially responsible mandates or interests. This was about double the number of investors compared with MWRD’s previous 2011 bond sale (Mastracchio, 2015). The MWRD interviewee said, “The green label did matter,” adding that although there was no interest rate savings, eventually an increase in the number of investors will likely result in lower interest rates.

MWRD prepares an annual green bond report that shows the status of the allocation of the green bond proceeds by project until all bond proceeds

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have been disbursed. The report also describes major projects in more depth, including information and statistics on the environmental impacts of the projects. The interviewee said the performance metrics are fairly universal and were not new. In reflecting on the issuance of green bonds, the MWRD interviewee said, “Green bonds are consistent with our agency’s focus on environmental sustainability. ... It was a lot of work but well worth it.” The interviewee said MWRD was planning another green bond issuance in 2021.

CHICAGO PUBLIC SCHOOLS

Another early issuer of green bonds in Illinois was Chicago Public Schools (CPS), which serves about 340,000 students and maintains more than 600 schools (Chicago Public Schools, n.d.). In April 2015, CPS issued \$20 million in green bonds, along with the issuance of \$275 million in non-green bonds. The idea to issue green bonds evolved in discussions among CPS officials,

underwriters, and investors, according to a CPS interviewee. The interviewee said, “We wanted to attract as many investors as possible.”

CPS staff developed criteria to identify green projects, and then facility staff selected projects from the comprehensive facility plan that met those criteria. This included projects that improved energy efficiency or environmental sustainability, such as retrofitting, LED projects, and boiler/chilling replacement. The staff, attorneys, and underwriters also reviewed the projects, and, according to the CPS interviewee, there were not many differences of opinion. CPS did not pledge to do any additional reporting with regard to the green bonds.

CPS issued non-green bonds at the same time it issued green bonds, with both types of bonds having the same security. The non-green bonds were two times oversubscribed; however, the green bonds were undersubscribed, meaning that there was insufficient demand for the amount of green bonds available, the CPS interviewee said. The underwriter purchased the green bonds that did not sell and later resold them. The green bond investors included some institutional mutual funds while the non-green investors included arbitrage investors and others, according to the CPS interviewee. The CPS interviewee said that CPS did not achieve its financial objective through the issuance of green bonds and “would not do it again at our current credit.” The official added that it might be different if CPS had a higher credit rating or the market on green bonds was to evolve further.

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CITY OF DECATUR

Decatur was the first municipality in Illinois to issue green bonds. The city issued \$22.205 million in green bonds in 2016 to finance a portion of the costs of dredging Lake Decatur. The city treasurer initiated the idea to label the bonds as green, noting that the lake dredging project was a “good fit” and that it would help market the bonds. The issuance of green bonds entailed minimal additional work for city staff — “primarily adding the words ‘green bonds;’” one Decatur interviewee said.

The issuance of green bonds helped convey a positive news story to the residents, as well as to the rating agencies and investors. “It opened their eyes to the positive action we were taking,” a second Decatur interviewee noted. There was some evidence of additional interest from investors who were “keen to green issuances” but no noticeable difference in interest rates. There was sufficient demand to sell all the bonds, although that also was true of two prior bond issuances for the same project, according to the first Decatur interviewee.

The city did not promise any additional post-issuance reporting for the green

bonds. However, the city's website includes a fact sheet that describes the dredging project, which was completed in December 2019 at a total cost of \$91.9 million. The fact sheet indicated that the project increased the lake's capacity by 30%, which is equivalent to 2.24 billion gallons (City of Decatur, 2021).

City officials decided not to issue green bonds for the fourth bond issue for the lake dredging project because the bonds also were going to be used to finance other projects, including the construction of three fire stations. However, the first Decatur interviewee said the city may consider green bonds in the future for planned sewer and wastewater improvements.

ILLINOIS FINANCE AUTHORITY AND ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The first state government entity to issue green bonds in Illinois was the Illinois Finance Authority (IFA). IFA issued \$450 million in green bonds in April 2019 and an additional \$500 million in December 2020 to provide funds for the state's Clean Water and Drinking Water state revolving fund (SRF) programs. The SRF programs, which are administered by the Illinois Environmental Protection Agency (IEPA), provide low-interest loans to municipalities for water and wastewater capital projects.

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IFA previously had issued traditional bonds for those SRF programs. In 2019, IFA and IEPA officials decided that SRF programs were a good fit for green bonds. They also noted that the issuance of green bonds was consistent with Governor JB Pritzker's Executive Order No. 2019-06 on climate change and IFA's Transformation Initiative, which includes an enhanced focus on sustainable financing/addressing climate change. According to an IFA interviewee, IEPA was already doing much of the reporting that would be needed for the green bonds.

The IFA interviewee said that IFA decided to self-identify the green bonds without the use of an external verifier because "investors know that all SRF projects are green based on federal eligibility requirements." For both issues, the official statement provided a list of the local projects that would be funded with green bonds, including the name of the municipality, a description of the project, the estimated cost, and an estimated completion date. IFA and IEPA also committed to post-issuance annual reports available through the electronic monitoring market access (EMMA) website to show the allocation of bond proceeds on a project basis until all bond proceeds are disbursed (Illinois Finance Authority, 2019a and 2020).

The official statement for the 2020 green bonds placed increased emphasis

on green bond standards and metrics. The official statement addressed the four pillars of the Green Bond Principles and identified three relevant United Nations sustainable development goals. The official statement also said that IEPA will “use its best efforts” to report the impacts of the projects (Illinois Finance Authority, 2020). The interviewee said that investors want metrics and that the performance reporting will help draw investor attention to the bonds.

According to the interviewee, the workload for the issuance of green bonds was not much more than what was required for traditional SRF bonds. Staff prepared the green bond narrative for the official statements and the annual reports. However, staff already had been gathering the data and submitting a report to the U.S. Environmental Protection Agency.

The IFA/IEPA green bonds attracted new investors, including 13 for the 2019 bonds and 19 for the 2020 bonds (Illinois Finance Authority, 2019b and 2021). For the 2019 bonds, a green bond investor played a key role in stabilizing the pricing (Illinois Finance Authority, 2019b). In 2020, four of the investors bought the bonds for their Environmental Social Governance (ESG) accounts (Illinois Finance Authority, 2021). Both green bond issues were oversubscribed. The

TABLE 1

| ISSUER | YEAR ISSUED | AMOUNT | PURPOSE |
|---|-------------|------------------|--|
| Metropolitan Water Reclamation District of Greater Chicago | 2014 | \$225 million | Sewers, flood control, stormwater management, resource recovery |
| | 2016 | \$104 million | |
| Chicago Public Schools | 2015 | \$20 million | School facility projects that promote energy efficiency or sustainability |
| City of Decatur | 2016 | \$22.205 million | Dredging of Lake Decatur |
| Illinois Finance Authority and Illinois Environmental Protection Agency | 2019 | \$450 million | State revolving fund program for water, nonpoint pollution mitigation and wastewater |
| | 2020 | \$550 million | |
| DuPage County | 2020 | \$50.835 million | Bond refunding for Morton Arboretum |
| Will County | 2021 | \$39.245 million | Renewable natural gas plant |

SUMMARY OF CHARACTERISTICS OF ILLINOIS GREEN BOND ISSUES

Sources: Metropolitan Water Reclamation District of Greater Chicago (2014 and 2016), Board of Education of the City of Chicago (2015), City of Decatur (2016), Illinois Finance Authority (2019a and 2020), County of DuPage (2020), County of Will (2021).

| | EXTERNAL VERIFIER | OFFICIAL STATEMENT REFERENCE TO ICMA GBPS UN GOALS | | POST ISSUANCE REPORTING | BOND RATINVG AT THE TIME OF ISSUANCE |
|--|-------------------|--|-----|-------------------------|--|
| | No | No | No | Yes | (for both issuances) |
| | No | No | No | Yes | Fitch AAA S&P AA+ |
| | No | No | No | No | S&P A- Fitch BBB- Kroll BBB+ |
| | No | No | No | No | Insured S&P AA Underlying Moody's A1 |
| | No | No | No | Yes | (for both issuances) |
| | No | Yes | Yes | Yes | Fitch AAA S&P AAA |
| | No | Yes | Yes | No | Moody's A1 |
| | No | No | No | Yes | Moody's Aa1 S&P AA+ |

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2020 green bonds were 1.4 times oversubscribed and had an all-in true interest cost of 1.81%, which was the lowest cost of funds in the history of the state's revolving fund leveraged bond program (Illinois Finance Authority, 2021).

In reflecting on the green bond issuances, the IFA interviewee said, "Green bonds contribute to our branding and allow us to showcase the work IEPA is already doing." The official added, "The data metrics allow us to show the environmental improvements that the projects are making."

DUPAGE COUNTY

The next green bond issuer is DuPage County, which issued \$51 million in green bonds in July 2020 on behalf of the Morton Arboretum. Morton Arboretum is a nonprofit organization located in DuPage County and is a "world-renowned leader in tree science, education, and conservation of trees" with 1,700 acres open to the public (County of DuPage, 2020, p. A-1). The green bonds were used to refund two Morton Arboretum bonds and to pay the termination costs of a swap agreement.

WILL COUNTY

Will County, another Chicago metropolitan county, issued \$39.245 million in green bonds in June 2021 for a renewable natural gas plant and pipeline to be located at a county landfill. The system will collect and process landfill gas and use the gas to fuel a natural gas plant. Will County has entered into a contract for 10 years, with the possibility of extension for another 10 years, with a firm that will sell the natural gas to other users (County of Will, 2021).

The official statement notes that the renewable natural gas facility is consistent with two United Nations sustainability goals (one related to affordable and clean energy and another related to climate action) and conforms to ICMA's Green Bond Principles (County of Will, 2021). It also provides metrics on the production of natural gas during the first 10 years of operation and refers to the production of a cleaner-burning fuel. Will County plans to post annual updates on the EMMA system until all bond proceeds have been spent.

SUMMARY

These six green bond issuers in Illinois financed a variety of green capital projects as well as one refunding of bonds previously used for green projects (see Table 1). None of the issuers used external reviewers, but several of the

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issuers included information on the environmental impact of the projects, and two of the most recent issues explicitly referenced the Green Bond Principles and UN sustainable goals. This section highlighted some of the perspectives of green bond issuers in Illinois, but additional research would be needed to address issues such as how investors viewed the greenness of the projects, whether investors are more receptive to green bonds that have higher bond ratings, and the extent to which the green label affected the number of investors or interest rates.

FACTORS TO CONSIDER WHEN CONTEMPLATING THE ISSUANCE OF GREEN BONDS

Drawing on the Illinois green bond issuers' experiences, this section discusses key issues that state and local government green bond issuers and potential green bond issuers may find helpful to consider (see Figure 4).

One of the first factors to consider is whether a unit of government has a project that would qualify as a green project. This might be one large project, such as the dredging of Lake Decatur or the renewable natural gas plant in Will County, or a number of projects that collectively could be suitable for green bonds. If the latter applies, then the government could do what CPS and MWRD did — establish criteria for green projects and then assess which projects are eligible. Another possibility, as illustrated by the DuPage County green bonds, is to use green bonds to refund bonds that originally were used for green projects.

Government officials also should consider the benefits and costs of issuing green bonds. In some instances, the costs are minimal in that governments are not undertaking new tasks or compiling new statistics. However, in other cases, such as the MWRD issues, substantial staff time was spent in establishing and applying eligibility criteria for green projects. Issuers that seek external verification will need to provide the necessary information required for that review and pay the associated costs.

Some issuers report that their green bonds have attracted more investors, including those with a special interest in the environment, but to date, state and local governments have not reported significant interest cost savings. Some green bond issuers remain committed to green bonds as part of their government's sustainability goals. Plus, some issuers believe that eventually there will be interest cost savings as the green bond market expands.

FIGURE 4
GREEN BOND ISSUANCE CONSIDERATIONS





- Water, wastewater
- Stormwater, flood management
- Clean transportation
- Energy-efficient buildings/housing
- Other

- Attract more investors
- Signal support for the environment
 - Possibility for interest cost savings (perhaps sometime in the future)

- What constitutes a “green” project
- Who determines eligible projects
 - Whether to include refunding of bonds as green bonds

- Potential to attract more investors
 - What information is required pre- and post- issuance
- Weigh benefits and costs
- Are refunding bonds allowed

- How will debt proceeds be allocated
- Possibly report performance metrics

- Marketing by underwriters and possibly staff
 - Evaluate bond performance, e.g., new investors, true interest costs

 - Annual reports on disbursement of bond proceeds
 - Possibly report environmental impact of projects

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If government officials decide to issue green bonds, they will need to decide what types of information to disclose before and after the bonds are issued. One option is to include a list of the green projects, along with the costs and estimated completion date, in the official statement. The issuer also may want to include metrics on the estimated environmental impact of those projects. Some governments choose not to do any post-issuance reporting while others

report annually on the disbursement of bond proceeds on a project basis until all funds are allocated. Others report performance metrics about the impact of the projects on the environment. Another factor for a unit of government to consider is whether to use an external reviewer to prepare a verifier's report for a Climate Bonds Certification or to render a second-party opinion. A government will need to consider the costs and benefits of this practice.

CONCLUSION

The green bond market for state and local governments continues to evolve. Increasingly, governments are focusing on sustainable and environmental issues and how to finance related capital projects. For example, officials in California have discussed the possibility of developing a pooled green bond program to help small issuers attract large investors (Milken Institute Financial Innovations Lab, 2018).

Private entities also are helping grow the green bond market. For example, an investment firm created a municipal green bond fund in 2020 that will invest at least 80% of its net assets in municipal green bonds (Segal, 2020). A bond insurance company is offering a green bond assessment at no extra charge for bonds it underwrites that include eligible green projects and listing those green bond issues on its website (Weitzman, 2018).

Regardless of whether a government decides to issue green bonds, some of the developments in the green market may become considerations for best practices in debt issuance more broadly. This includes providing more pre-issuance disclosure about the projects that will be financed with bond proceeds; improving the integration of bond financing with sustainability plans and other plans; having finance officials and engineers work more closely together; encouraging government officials to engage more with investors; and, expanding post-issuance reporting to include key performance indicators about the impacts of the projects that are being financed.

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ENDNOTES

¹ We reviewed data in the Mergent Municipal Bond Database (2013-March 2019), Climate Bonds (2019-June 2021), MuniOS (2020-June 2021), and BAM (as of June 2021).

² Those issuers included two water districts (Greene County Rural Water District and Summerfield, Lebanon, Mascoutah Water Commission of St. Clair County) and five general purpose municipal governments (Park Forest, Rock Island, Kankakee, LeRoy, and Marseilles).

³ We conducted interviews with officials from the Metropolitan Water Reclamation District of Greater Chicago and Chicago Public Schools in December 2016 and with officials from the City of Decatur and the Illinois Finance Authority in June 2021.

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