CPP Investments

THINKING**ahead**

Financing a greener future

Meeting the complex challenge of climate change will require innovation across the global economy. We believe green bonds will play an important role in funding an economy-wide evolution.

Financing a greener future

Green bonds support the transition to a low-carbon world as standards evolve and market volumes grow

Canada Pension Plan Investment Board (CPP Investments™) is a professional investment management organization that manages the Fund in the best interest of the more than 20 million contributors and beneficiaries of the Canada Pension Plan.

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First introduced in the 2000s, green bonds enable companies, investors, governments and other organizations to raise funds for projects that have environmental benefits. In 2020, cumulative green bond sales exceeded US$1 trillion.[1] Standards and rules around the instrument are evolving, and as they solidify, we believe that an increased number of issuers and buyers will utilize green bonds. In doing so, they will support the transition to a net-zero world.

Meeting the complex challenge of climate change will require innovation across the global economy on a scale with few precedents. Today, around 80% of global energy is generated from fossil fuels.[2] We'll need to re-engineer how we travel, retrofit equipment to heat our homes more efficiently, rethink our food supply, rebuild infrastructure to filter and conserve water, upgrade much of our legacy electricity grid and transform our industrial base with new fuels and other advanced technologies.

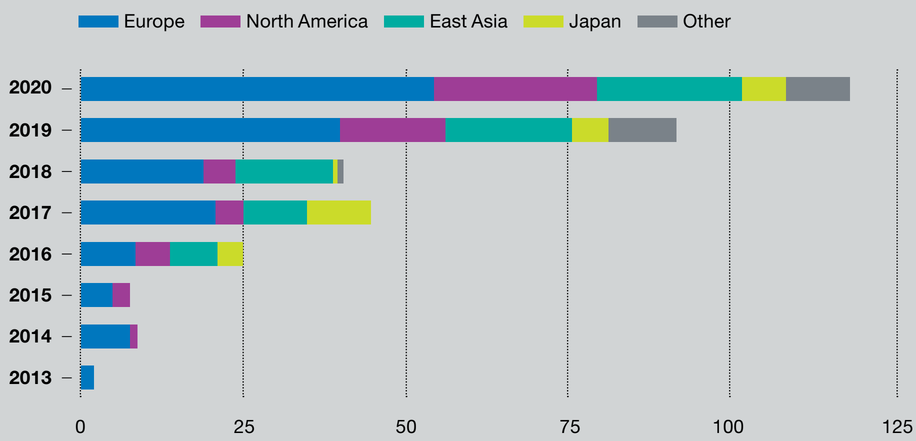
The investment needed to complete these transformations create unique economic opportunities for investors, and could span upwards of US$50 trillion.[3] Exactly how the world will fund these investments, and how investors will take advantage of these economic opportunities is less clear, but we believe green bonds will play an important role.

Green bonds can help finance projects that address climate change-related opportunities — from renewable energy to green buildings — while providing institutional investors, foundations and individual investors with environmentally sustainable investment options.

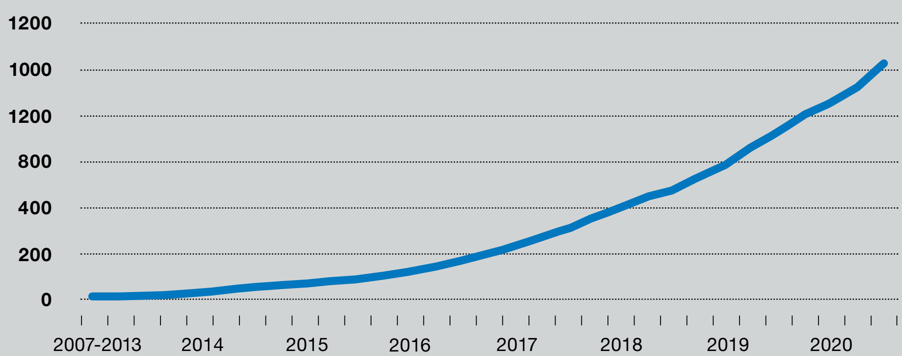
To be sure, green bonds comprise only a small share of overall debt issuances, and challenges remain. Industry standards are developing, even as regulators, rating agencies, issuers and buyers race to standardize taxonomies and best practices.

All the same, a growing queue of corporate and sovereign issuers is forming to funnel hundreds of billions of dollars toward climate change-related initiatives and their associated economic opportunities. CPP Investments believes green bonds will play a much larger role in focusing capital on this space.

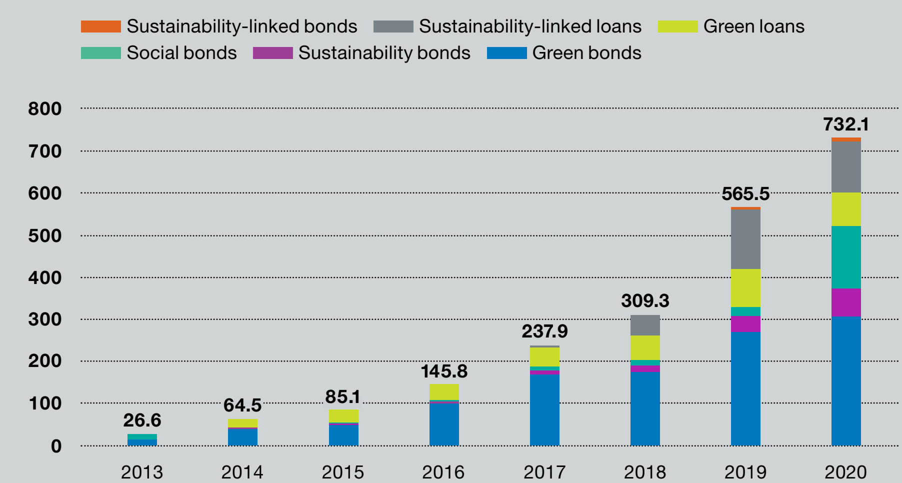
1. **Green bond issuance by region** US$ billion



2. **Cumulative green bond issuance by quarter** US$ billion Q3 2021



3. **Global sustainable debt issuance** US$ billion



Sources: Chart 1: Dealogic; Charts 2 and 3: BloombergNEF, Bloomberg LP

A growing opportunity

Green bond issuances today are booming. The instruments first took root among multilateral and non-governmental organizations (NGOs) in the 2000s.[4] The European Investment Bank issued the first green bond in 2007.[5] Poland followed in 2016 with the first sovereign issuance, and corporate offerings began to take off soon after.[6]

Today, the market remains centered in Europe. The region accounted for around half of global offerings in 2020, and is dominated by multilateral and sovereign issuers. However, volumes are growing in North America and East Asia (*see chart 1*).[7]

While cumulative green bond sales passed US$1 trillion last year (*see chart 2*),[8] they amount to a drop (<1%) in the wider ocean of aggregate global bonds in circulation.[9] Yet green bonds are growing quickly. With about US$294 billion in green bonds sold through the first half of 2021, issuances are on track to exceed last year's record of US$309 billion.[10]

Green bonds form a distinct part of the fast-growing market for ESG-rated debt, a broader set that includes climate bonds, infrastructure bonds, renewable energy bonds, social bonds, sustainability bonds and transition bonds. Cumulative sustainable debt issuance through May 2021, including these categories, surpassed US$3 trillion according to BloombergNEF;[11] this also included US$732 billion in 2020, up 29% year-on-year (*see chart 3*).[12]

Funds raised from green bonds primarily flow to, or are notionally

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At CPP Investments we see green bonds as one part of our wider approach to sustainable investing. In 2018, CPP Investments was the world's first pension fund to issue green bonds and we have since floated six more issuances *(see sidebar on* *How CPP Investments is advancing green bonds, page 6*).

allocated to, end uses that eliminate or lower emissions. In 2020, for instance, 85% of global proceeds were split between three sectors:[13]

- energy, with roughly a third going to fund renewables such as solar, wind, and storage;
- high-efficiency green buildings, which use less energy, claimed another quarter of the total; and
- low-carbon transport projects, such as electric vehicle (EV) infrastructure, accounted for another quarter.

To date, a much smaller share of funds has been targeted at *resilience* efforts — sometimes also called *adaptation* programs — which lessen the impacts of climate change, rather than reduce emissions. These can include steps to minimize the damage from flooding, drought, extreme temperatures and/or fire, all of which are predicted to worsen.

These emerging resilience categories round out the remainder of last year's global green bond issuances:

- **water**, typically to protect supplies, reduce consumption and/or improve stormwater infrastructure;
- **land use**, often in the form of conversion or protection to mitigate risks of flood and fire; and
- **waste projects**, to minimize hazardous emissions, as well as to boost reuse and recycling and cut waste going to landfills.[14]

Establishing standards is key

Until standards and rules — covering how the sector packages green bonds and measures their impacts — are more firmly set, some investors may remain cautious. More comprehensive rules are evolving quickly. While no single authority owns the standardization of green bonds, the quality and sophistication of standards, analysis and advisory is advancing rapidly, guided by input from key industry constituencies.

As this ecosystem continues to mature, green bonds are likely to follow in the path set by earlier green financial assets, from carbon credits to renewable fuel standards. Each was piloted based on policy proposals, then scaled through a period of rule-making before being developed into more standardized financial products as volumes grew, investment deepened and rules and practices were refined, guided by early lessons. Green bonds offer several interrelated advantages for both issuers and buyers:

- They allow issuers to prioritize funding or notional allocation of funds to environmentally friendly investments via low-risk, long-term investments that generally yield steady returns.
- Green bonds can also be used to support projects that promise secondary benefits such as reducing pollution, increasing resiliency against the impacts of climate change and lowering risk.
- Strong demand can translate into lower cost debt and superior pricing relative to conventional bonds over the long run.
- Green bonds can also provide a growing pool of buyers with sustainability and climate change-related investment options.

Issuers are seeing lower costs.

A growing body of research shows issuers of green bonds are saving money. As demand increases, the inflow of money is driving up prices and pushing down yields, making borrowing slightly cheaper: what some call a "greenium."

Late-2020 research found the yield from green bonds to be as much as 0.11 percentage points below prevailing rates.[15]

The "greenium" may grow. As green bond standards improve, the pool of potential buyers is expected to deepen — and, as it does, debt costs could fall further. Select bond funds have already begun to include green bonds and more will do so as standards solidify. Green bonds issued by CPP Investments are currently listed in three green bond indices.[16]

Demand is growing.

The rise in green bond sales is part of a larger influx of cash flowing into green-themed investments. A generational shift is underway among retail investors, with environmentally minded millennials emerging as the next great investor class and many of them actively steering money away from more carbon-intense options.[17]

Likewise, to find greater financial return and to reduce their carbon exposure, a growing portion of the client base of institutional investors — including pension funds, sovereign wealth funds, family funds, university endowments and foundations — are reallocating funds towards options addressing climate change such as green bonds and renewable energy stocks.[18]

The road ahead is green

Driven by a mix of investor demand, rising corporate investment in climate change-related projects and a surge in "build back better" economic recovery spending in Asia, Europe and North America, the green bond market is likely to continue to grow.

In 2020, for example, the EU has boosted its already ambitious green goals, aiming to lower emissions by 55% by 2030 against 1990 levels. To fund this push, Europe has unveiled plans to issue €225 billion (US$267 billion) in green bonds, targeting projects such as electric vehicle (EV) infrastructure, energy-efficient building upgrades and green hydrogen.[19]

A range of entities are standardizing green bonds:

- Multilateral bodies: the United Nations, the World Bank
- Sovereign, provincial and state regulators: Canada, the U.K., the U.S. and the EU, as well as California and New York
- Legacy debt market experts: Bloomberg, Moody's and S&P
- Specialized expert organizations: CICERO and the Climate Bonds Initiative

In January 2021, Climate Bonds Initiative forecasted that green bond issuance would reach between US$400 to US$450 billion this year. But as of September 1, 2021, the group increased its forecast to US$500 billion, given that issuance of green bond instruments in the first half of 2021 more than doubled that of the same period in 2020 (US$228 billion vs. US$92 billion).[20]

See our Sustainable Investing page to learn how we fulfill CPP Investments' mandate by effectively managing environmental, social and governance factors to create sustainable value over the long term.

Sustained growth is likely to raise pressure to standardize and advance regulation of the green bonds market. As sales of green bonds rise, it's only natural that scrutiny will, too. In 2019, an executive at Japan's Government Pension Investment Fund — the world's biggest — told the Financial Times that, "without greater volume and higher confidence in selection standards, the asset class risks becoming "a passing fad."[21]

At the other end of the spectrum is a once-in-a-generation opportunity for investors to help shape the destiny of green bonds.

For green bonds to go from a fast-growing niche to a standard offering, rules will have to grow out of a mix of evolving draft rules into something closer to the bond market's extant framework for governing how debt is rated, issued and evaluated for performance.

As the world evolves to net zero over the next several decades, it begs the question whether the classification system for all bonds will go green. Instead of a passing fad, it could mean sheer dominance for green and transition bonds. To make this happen, the imperative is to improve green bond standards and practices quickly. Doing so can help the financial sector realize its enormous potential for guiding capital toward investments that support the evolution to a low-carbon economy while also boosting returns. ●

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How CPP Investments is Advancing Green Bonds

At CPP Investments, we see green bonds as a vital element in our wider approach to generating strong investment returns in a manner that supports the evolution to a decarbonized economy. Green bonds are a promising tool to increase our capacity to invest in climate change-related opportunities.

In 2018, CPP Investments debuted as the world's first pension fund manager to issue a green bond, a $1.5-billion (US$1.2-billion) 10-year offering. The following year, we notched another pension-fund first with the sale of a euro-denominated green bond: a €1-billion (US$1.3 billion), 10-year fixed-rate note. U.S. and Australian dollar offerings have followed. As of June 30, 2021, we have six outstanding green bond issuances totalling over $5 billion in four different currencies (AUD, CAD, EUR and USD).

Our 2018 debut bond was over-subscribed two-fold. As of September 30, 2021, of our more than 700 investors in 59 countries, 271 investors from 32 countries have participated in our green bond offerings. Given that strong uptake, we see potential to further expand green bond sales. A larger pool of buyers should continue to lower borrowing costs. CPP Investments' offerings are currently listed in nine bond indices, three of which are green.

Standards are key to the success of green bonds. Our program was developed in accordance with the Green Bond Principles (GBP) as set out by the International Capital Markets Association (ICMA).

Guided by these principles, CPP Investments developed our Green Bond Framework to establish guidelines for our selection process. This framework has been evaluated by the Center for International Climate Research (CICERO), a leader in providing second opinions on the qualification of debt for green bond status. As of October 2021, we updated this framework to include the following eligible investment categories:

Renewable energy.

- Acquisition, operation, maintenance and upgrades of wind and solar energy projects
- Acquisition, operation, maintenance and upgrades of renewable energy storage projects
- Acquisition, operation, maintenance and upgrades of wind energy projects
- Efficiency improvements to wind and solar energy projects

Green buildings.

- Direct investments in buildings certified as LEED Platinum and/or their global equivalent

Low Carbon/Clean Transportation.

- Investments in construction, development, operation, acquisition and maintenance of low carbon transportation assets, including:
  - electric, fuel cell and non-motorized vehicles, and supporting infrastructure such as charging stations
  - infrastructure and rolling stock for mass transit

Energy Efficiency.

- Investing in technologies/infrastructure that result in increased energy efficiency

The funds raised via our green bonds are allocated to a range of investments that we believe will generate strong returns while helping to lower carbon emissions, including these two industry leaders:

Cordelio Power.
Cordelio is a renewable power producer managing over 1,000 MW of renewable generation assets across North America. Cordelio also owns (wholly and through a joint venture) a growth pipeline of over 6,500 MW of wind, solar and storage projects in the western and midwestern U.S. Cordelio carries out its operations and growth activities in an efficient, safe and environmentally responsible manner. Cordelio is wholly owned by CPP Investments.[22]

Pattern Energy.
With more than 4,500 megawatts of operating facilities in Canada, Japan, Mexico, and the U.S., Pattern Energy is a leading developer, owner, and operator of utility-scale clean energy facilities, including wind, solar, transmission, storage and advanced energy technologies. CPP Investments owns 69% of Pattern Energy. In July 2020, Pattern Energy issued its own green bond, in part to fund its 1,050-megawatt Western Spirit Wind project in New Mexico, due to go live in December 2021, and which ranks as the largest single-phase renewable energy project in U.S. history.[23] ●

Contributors

James Logush
Managing Director, Financing, Collateral & Trading, Global Leadership Team

James Logush heads up all secured and unsecured financing activity within our Financing, Collateral & Trading group. This includes management of our Commercial Paper programs and the build-out of our multi-currency Term Debt issuance program. Before that, he headed Fixed Income execution and Fixed Income portfolio management within Global Capital Markets.

Prior to joining CPP Investments in 2011, James garnered extensive international experience in the fixed income markets, working in Tokyo, London, New York and Toronto.

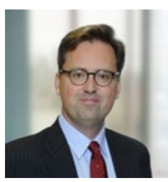
James holds a BA in Economics from Western University. He is a CFA charterholder.

Samantha Hill
Managing Director, Sustainable Investing

Samantha Hill is a senior member of CPP Investments' Sustainable Investing team, where she oversees activities to consider material environmental, social and governance (ESG) matters in engagements with public companies, primarily on climate change, water and human rights, and works alongside investment colleagues to integrate ESG matters into investment activities. This includes leading ESG diligence efforts globally for direct equity investments across asset classes. Samantha is also one of several individuals contributing to enhancing CPP Investments' efforts to embed climate change-related considerations in investment and asset management activities and better understand the investment implications across the Fund.

Prior to joining CPP Investments in 2007, Samantha worked in multiple roles within CIBC's Commercial Banking division related to senior debt financing for national accounts and real estate.

Samantha holds an MBA from Dalhousie University in Halifax, where she completed a double major in Finance and Environmental Management.



Jeffrey Hodgson
Managing Director, Global Stakeholder Affairs

Jeffrey Hodgson joined CPP Investments in July 2017. He oversees the Global Stakeholder Affairs function. Jeffrey has more than 20 years of experience as a financial journalist on three continents. He began his career at Bloomberg News in Toronto and subsequently took on a variety of reporting and editing roles at Reuters. These included postings in London and Hong Kong, where he led coverage of Asia's asset management industry. More recently he was Business Editor for The Canadian Press, overseeing the work of journalists in Toronto, Ottawa, Montreal, Calgary and Vancouver.

Jeffrey holds a BA in Journalism from Carleton University in Ottawa.

More details on CPP Investments' Green Bond program can be found on our *Debt Issuance page*

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