

nuveen

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Global fixed income impact strategies

Case studies



What's inside

AFFORDABLE HOUSING	3	RENEWABLE ENERGY AND CLIMATE CHANGE	25
Non-agency multifamily CMBS	4	Hanwha Qcells	26
Freddie Mac	7	Arab Petroleum Investments Corporation	27
Century Housing Corporation (Century)	9	Tesla	30
Windsor Mobile Country Club	11	Continental Wind, LLC	32
		Sunrun, Inc.	34
COMMUNITY AND ECONOMIC DEVELOPMENT	13	NATURAL RESOURCES	36
Motability Operations Group	14	Thames Tideway Tunnel	37
County of Fairfax, VA	15	Emission Reduction-Linked Bond	38
Urban Revitalization	16	District of Columbia Water & Sewer Authority	39
Rural Broadband	20	Amazon Reforestation Bond	40
Women's Livelihood Bond Series	23	Galapagos Blue Bond	41
		Rhino Bond	44
		Republic of Seychelles Blue Bond	47

Affordable housing

Non-agency multifamily
CMBS ►

Freddie
Mac ►

Century Housing
Corporation (century) ►

Windsor Mobile
Country Club ►



Affordable housing

STWD TRUST 2021-LIH
COMMERCIAL MORTGAGE BACKED SECURITY (CMBS)



UN SDG
ALIGNMENT

Measurable impact 2023

- Housing units built or supported at or below 60% AMI: 2,983

Nuveen helps overcome housing headwinds

Over the past several years, the affordability of residential housing has declined. When COVID first disrupted supply chains and slowed the movement of construction materials, building costs jumped. And although these increases were initially and partly offset by the Federal Reserve's aggressive rate cuts, which kept borrowing costs low amid the economy's downturn, interest rates began to climb as economic conditions improved. This pushed mortgage rates to their highest levels in a generation and the dream of home ownership out of reach for many Americans.

Elevated mortgage rates have also contributed to a lack of supply of homes for sale, as many homeowners with locked-in, lower rates have chosen to stay put.

Against this backdrop, constructing affordable housing where land is cheapest is one way to boost the inventory of homes. Doing so, however, diminishes the socioeconomic dividends for communities and their residents. We believe affordable housing is more desirable and impactful when it is located where jobs and educational opportunities are available.

Originally appeared in 2024 Global fixed income impact report



AFFORDABLE HOUSING

For Adam Guerino, Associate Portfolio Manager on Nuveen's ESG/Impact Fixed Income team, the disparity between wage growth and housing expenses over the past several decades has increased the need for affordable housing solutions. Segments of communities have been displaced as they move further and further away from the economic core to afford shelter. This creates income-stratified communities and can lead to fewer economic opportunities for those forced out to underdeveloped areas, or overlong and expensive commutes that sap health, savings, and quality of life. The availability of affordable housing can partially offset this disparity, by allowing people to live where they work, live where the best cultural, educational, and medical services are located, and reside in a place that recognizes their contribution to the community.

Keys to unlocking affordable housing

The opportunities to finance affordable housing in the U.S. have historically been concentrated in government programs, within the reach of federally chartered agencies. Meanwhile, Nuveen's affordable housing impact investments have centered on Ginnie Mae mortgage-backed securities (MBS), which reduce mortgage costs for borrowers in various federal programs, and in Fannie Mae and Freddie Mac agency

commercial mortgage-backed securities (CMBS), which pool multifamily developments.

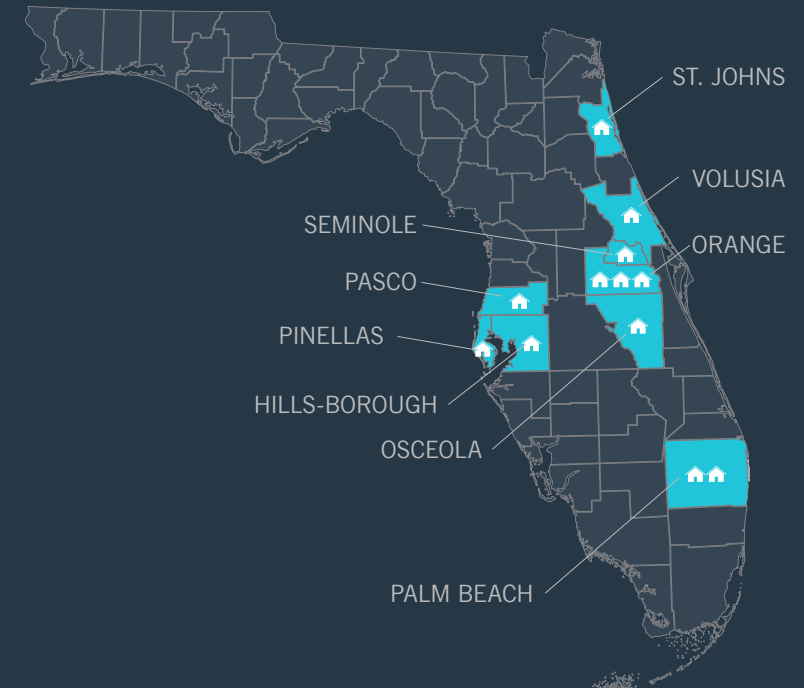
At the same time, the public fixed income market is providing more opportunities to direct capital to diverse issuers at increasing scale, enabling the nimble, efficient private development of affordable units. Some multifamily CMBS deals are issued by banks like Citibank, Wells Fargo or Barclays based on loans from their respective commercial loan books. Pooling mortgages moves the loans off their balance sheets and into investor portfolios, freeing up more capital for banks to make additional loans.

Establishing family ties in Florida

Other non-agency CMBS deals represent a pool of properties from a single developer or property owner, so the loans are not carried on the originator's balance sheet.

In the case of STWD Trust 2021-LIH, Nuveen invested in a pool of 12 affordable housing multifamily properties located throughout Florida, including the Orlando, Tampa, Daytona Beach, West Palm Beach, and Jacksonville metropolitan areas. With 2,983 affordable units out of a total of 3,082, nearly 97% of the portfolio represents affordable housing.

MAPPING STWD TRUST 2021-LIH PROPERTIES ACROSS FLORIDA COUNTIES





The U.S. Department of Housing and Urban Development (HUD) collects data at the property and tenant level, and also maintains a database of Area Median Income (AMI). For calendar year 2023, all 2,983 affordable units in the STWD CMBS pool were built or supported at 60% of AMI and below.

AMI is a metric used by the HUD to determine eligibility for certain federal housing programs. It represents the midpoint of the income distribution of a specific geographical area.

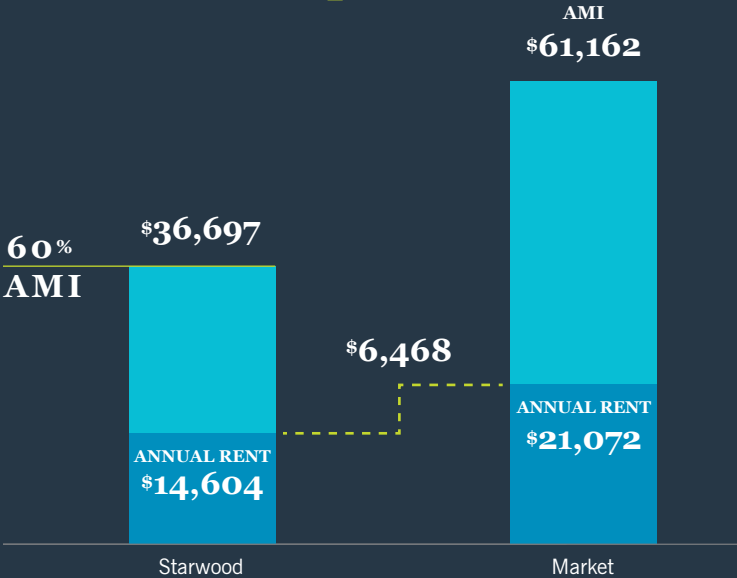
The Walden Park development in Kissimmee, Florida, helps illustrate the importance of affordable rental apartments. Residents at Walden Park are only eligible to rent based on household income limits set by HUD. According to U.S. Census data, the city has a total population of 79,226, total housing units of 30,370, and a median household income of \$89,142. The average property rent at the development was \$1,211 per month — more than 30% lower than the average market rent of \$1,756. Meanwhile, the desirability and demand for affordable housing pushed the property-level vacancy rate to 0.40%, versus the market vacancy rate of 15.5%.

SIMILAR TRENDS ARE OBSERVED ACROSS THE
12 PROPERTIES IN THE COLLATERAL POOL

Average Starwood property rent	\$1,217
Average market rent	\$1,756
Average affordable housing savings	\$539 per month \$6,468 per year
Range of Starwood property vacancies	0-4.8%
Range of market vacancies	6.8-21.7%

Source: CoStar Analytics. As of November 2024

Local property markets have
15X higher vacancy rates
than the Starwood properties
in the CMBS pool



Starwood properties' average rent saves ~18% of household income at 60% AMI, increasing disposable income

“

“The availability of affordable and workforce housing is fundamental to sustainable communities since it provides the foundation for creating economic opportunity for residents and communities alike.”

— Freddie Mac Multifamily Sustainability Report 2022



Affordable housing

FREDDIE MAC

Measurable impact

- Housing units built or supported: 69,320
- Units built or supported for residents with AMI <80%: 59,657

You’d be forgiven for thinking that all of the bonds under Nuveen’s Affordable Housing impact theme were agency pass-through mortgages. In fact, there is considerable sector and issuer diversification in this theme. In addition to Ginnie Mae (GNMA) mortgage-backed securities (MBS), we support affordable housing outcomes through corporate bonds, government agencies, state and local housing authorities, municipal bonds, community development finance institutions (CDFIs), and multifamily commercial mortgage-backed securities (CMBS) – both agency and non-agency.

Agency multifamily CMBS

The Federal Home Loan Mortgage Corporation (Freddie Mac) is a government-sponsored enterprise (GSE) created by Congress in 1970, with a charter to expand the secondary market for home mortgages by providing liquidity, stability and affordability to the U.S. housing market. Freddie Mac purchases mortgages and loans, packages them into mortgage-backed securities – which carry Freddie Mac’s guarantee of timely payment of principal and interest on the underlying mortgages – and sells them to investors.

Originally appeared in 2023 Global fixed income impact report



Nuveen’s investment in Freddie Mac impact bonds helped support the development of nearly 20,000 multifamily properties for low-income tenants.

Freddie Mac may be best known for its charter goals supporting single family residential mortgages. But it is also responsible for meeting several annual goals related to facilitating low-income housing under the supervision of the Federal Housing Finance Agency (FHFA). These goals include a minimum number of rental units in multifamily properties affordable to households whose income is at or below specified percentages of “area median income” (AMI) — a metric the U.S. Department of Housing and Urban Development (HUD) uses to determine eligibility for certain federal housing programs.

Freddie Mac issues multifamily certificates under its impact bond program. The program includes green, social, and sustainability bonds. The sustainability bond framework focuses on combining housing opportunities for low-to-moderate income households, in locations that help advance economic opportunity for residents (e.g., located near mass transit) and may have certain environmental impact features (e.g., energy and water efficiency improvements). Specifically for housing under HUD’s Section 8 program, eligibility is determined by three rigid tiers of renters by income:

Income band	Percent of AMI
Low-income	51–80%
Very low-income	31–50%
Extremely low-income	0–30%

As of 31 December 2022, Nuveen has invested over \$50 million in Freddie Mac multifamily CMBS as follows:

- \$29.6 million in sustainability bonds
- \$14.2 million in social bonds
- \$6.3 million in non-labeled bonds

“Many of Freddie Mac’s impact offerings tend to be smaller and very likely overlooked by public markets, if even offered publicly at all,” says Adam Guerino, a portfolio manager on Nuveen’s global fixed income — ESG/Impact team. “Typically, this means these projects would be forced into private credit and loan markets at higher rates, potentially curtailing overall affordability. However, Freddie Mac’s scale and credit support provides enough liquidity to generate strong demand from public markets. This ultimately results in increased affordability to residents and demonstrates the ability of public markets to support impact in ways private markets cannot.”

Guerino also notes that because of Freddie Mac’s size and scale, it’s able to provide unusual clarity on a bond’s impact via its website, including measures of a home’s water and energy usage, and greenhouse gas emissions. “In that regard, Freddie Mac stands out. An issuer’s willingness and ability to report

direct, measureable results helps drive our decision to invest and allows us to monitor the security’s impact over time — a crucial element of our responsible investing framework.”

That level of granularity is evidenced by one of the Freddie Mac multifamily bonds. The underlying pool includes five multifamily properties totaling 900 units — all of which are rented to residents earning 50%–60% AMI, which is considered very low income, per the definitions above. Three of the facilities have undergone energy and water efficiency improvements, and two of the facilities are located near mass transit.

Our framework considers Ginnie Mae MBS to be impact investments given the agency’s explicit mission to provide low-cost financing under federal housing programs. These programs serve low- and moderate-income borrowers who have a harder time qualifying for mortgages or would pay higher mortgage rates through other channels. Most GNMA loans are insured by the Federal Housing Administration (FHA) or guaranteed by the Department of Veterans Affairs (VA). GNMA bonds also support loans to homeowners through the Department of Agriculture’s Rural Development (RD) and the Department of Housing and Urban Development’s Office of Public and Indian Housing (PIH).

Contrast that with Fannie Mae and Freddie Mac MBS, which support American homeownership more broadly, increasing affordability for sure, but not without targeting lower-income borrowers specifically.

“

Cultivating relationships with issuers early in the process is crucial to help them develop meaningful impact metrics. Century has been particularly good to work with from that perspective, and it's been rewarding to see them become more accountable and deliberate in reporting as they increase their participation in the public markets.”

— Adam Guerino

Portfolio manager, ESG/Impact – Global Fixed Income



Affordable housing

CENTURY HOUSING CORPORATION (CENTURY)

ALIGNMENT WITH SDGS:



Mission and intended outcomes

- To finance, build and operate exceptional affordable housing so that the people Century serves may have “a dignified home, a healthy and hopeful future, and attain economic independence.”
- Offer innovative financing programs in California, partnering with state and local agencies, municipalities and other community development financial institutions.

Measurable impact

Proceeds from the Century bonds in which we invested were used to refinance loans for multifamily affordable housing development, including:

- 1,952 affordable housing units
- 843 supportive housing units (combining affordability with access to coordinated physical and mental health services)
- 1,515 senior housing units
- 381 workforce housing units (allowing moderate-income workers who would otherwise be priced out of local housing markets to live closer to their jobs)

Originally appeared in 2021 Global fixed income impact report



**AFFORDABLE
HOUSING**



**Watch the video
“Make your impact”**



CENTURY

Century Housing Corporation (Century) is one of more than 1,200 mission-driven financial providers in the United States that operate as certified community development financial institutions (CDFIs).

Established by the U.S. Congress in 1994, the CDFI Fund serves CDFIs with resources and programs that invest federal dollars alongside private-sector capital to support economically disadvantaged communities.

Traditionally, CDFI funding has been provided by banks, largely as a way for them to comply with Community Reinvestment Act reforms implemented in the wake of

redlining and other systemic practices that had disadvantaged low-income communities. Over the past few years, Century has been at the forefront of CDFIs beginning to diversify their sources of capital by issuing public debt.

“The public fixed income markets give issuers a practical tool for refinancing, which lowers their cost of capital,” explains Stephen M. Liberatore, CFA, head of ESG/impact — Nuveen global fixed income. “In our impact portfolios, we’re directing capital to help issuers achieve scale, improve borrowing efficiency and ultimately provide greater benefits to the community — all positive attributes of a capital market solution to a myriad social and environmental problems. CDFIs are an important organizational element for doing this.”

“It can be more challenging to find impact investments in affordable housing that meet the criteria of our framework,” says Adam Guerino, a portfolio manager on Nuveen’s global fixed income – ESG/impact team. “An issuer’s willingness and ability to report direct, measurable results is critical to our decision to invest, and we’ve found that many CDFI programs tend to emphasize anecdotal impacts, which can’t be aggregated.”

After the first of two deals we participated in with Century, we engaged with management to provide feedback on their

impact reporting. Importantly, this engagement consisted of two-way dialogue in which they actively sought our guidance and were eager to listen and implement enhancements. The impact results of the two bonds are now quantified and reported on both an annual and cumulative basis and posted on a dedicated public web page.

“Cultivating relationships with issuers early in the process is crucial to help them develop meaningful impact metrics,” Adam says. “Century has been particularly good to work with from that perspective, and it’s been rewarding to see them become more accountable and deliberate in reporting as they increase their participation in the public markets.”

Ultimately, the growth of impact investing into an instrument of societal improvement will not come from passive purchasing of bonds but active engagement that connects the desires and interests of investors with the capabilities and efforts of issuers. For its part, Century aims to continue expanding beyond its typical business model of providing short-term construction financing for affordable housing development and toward building a more permanent loan portfolio in this space. Meanwhile, the investment-grade ratings that Century has received from Standard & Poor’s and Fitch may help it attract a wider investor base for future impact issuances.



“

Windsor is an example of a truly innovative approach that speaks to what’s possible in the world of impact investing. The issuer’s commitment to continually enhance housing affordability not only meets the needs of low-income residents but also helps sustain the cash flows investors are looking for — all while reducing the carbon footprint of the property. This is the kind of holistic forward thinking we hope and expect to see more of in the future.”

— Adam Guerino

Portfolio manager, ESG/Impact – Global Fixed Income



Affordable housing



Renewable energy and climate change

WINDSOR MOBILE COUNTRY CLUB

ALIGNMENT WITH SDGS:



Mission and intended outcomes

- To be a premier 55-plus manufactured home community offering an upscale but affordable standard of living in beautiful Sonoma County, California.
- To further lower the costs of housing and to benefit the environment by utilizing a solar power system.

Measurable impact

Of the proceeds from the 2020 taxable municipal issue in which Nuveen invested, \$3 million (roughly 17% of bond principal) were used to construct and install an 890 kilowatt (kW) solar power system for the park in the first half of 2021, leading to:

- Up to 90% lower projected annual electricity costs for residents
- Environmental benefits of generating 1.3 million kW hours of solar power, enough to:
 - Provide electricity to the park’s 336 homes for 2020
 - Displace 921 metric tons of carbon dioxide equivalents from the atmosphere
 - Achieve the comparable impact of taking 200 cars off the road for one year100% occupancy rate in the park
 - 44% of spaces are rented by very-low-income households (less than 50% of area median income (AMI))
 - 43% are rented to low-income households (defined as 80% of AMI)

Originally appeared in 2021 Global fixed income impact report



AFFORDABLE HOUSING



RENEWABLE ENERGY AND CLIMATE CHANGE



Windsor Mobile Country Club is a mobile home park located in Windsor, California, approximately 60 miles north of San Francisco in Sonoma County.

AFFORDABLE HOUSING SCARCITY



Encompassing 336 manufactured homes, a clubhouse, pool and other amenities, the 43-acre park bears little resemblance to the traditional image of affordable housing stock as large, multifamily facilities either directly owned by public agencies or developed through public subsidies, such as Low-Income Housing Tax Credits (LIHTCs).

Manufactured housing typically costs 50% less per square foot to build than standard homes. And while residents of mobile home parks own the units they live in, they rent the land on which their homes sit, lowering their overall cost of housing even more. According to the Manufactured Housing Institute, 60% of U.S. households who live in manufactured housing are low income, earning less than \$40,000 annually.

Manufactured homes and mobile home parks are therefore a viable affordable housing option for people who live in areas where average incomes and housing costs are high and traditional affordable housing programs are scarce.

Until Windsor Mobile Country Club, the town had been able to develop only 404 income-restricted units since 1986. With its 336 homes, the park nearly doubled the local affordable housing stock, and our investment helped lower financing costs via the municipal bond market.

To qualify for this cheaper source of credit, the mobile home park had to agree to rent at least 20% of its spaces to “very-low-income” residents (typically earning 50% of the area median income, or AMI).

Windsor Mobile Country Club also participates in a state program that provides a property tax rebate based on the percentage of low- and very-low-income residents. This financial incentive directly helps residents by reducing pressure to increase space rents.

A solar power system further lowers the cost of housing and benefits the environment

Under its current ownership since 2008, Windsor Mobile Country Club has made numerous investments in physical improvements, including replacing utility lines and transitioning to more drought-tolerant landscaping.

Community and economic development

Motability
Operations Group ▶

County of
Fairfax, VA ▶

Urban
Revitalization ▶

Rural
Broadband ▶

Women's Livelihood
Bond Series ▶



Community and economic development

CASE STUDY: MOTABILITY OPERATIONS GROUP



Use of proceeds

- Motability Operations is a vehicle leasing provider in the United Kingdom that supports individuals with disabilities and their families.
- Bonds were issued under the issuer's Social Bond Framework and support the Motability Scheme, which allows eligible customers to exchange their mobility allowance for leased vehicles, including cars, wheelchair-accessible vans, scooters and powered wheelchairs.
- Mobility allowances are weekly payments from the UK government to assist individuals with extra costs associated with disability.
- Recipients include those that qualify for certain disability benefits including: (1) Higher Rate Mobility Component of

the Disability Living Allowance; (2) War Pensioners' Mobility Supplement or the Armed Forces Independence Payment; and (3) Enhanced Rate of the Mobility Component of the Personal Independence Payment (PIP).

Measurable impact

- Supported 374,586 customers that have entered into a new lease agreement and received a new vehicle in 2024. Of that, 164,9762 beneficiaries were new to the Scheme.
- 24,000 benefices now on the powered wheelchair and scooter Scheme, a 10 increase from the prior year.
- Through close collaboration with the auto industry, the scheme can keep prices low—approximately 48% cheaper than any other commercial leasing alternative.

Originally published in November 2025



Community and economic development

CASE STUDY: COUNTY OF FAIRFAX, VA



Creating community in Fairfax County

Fairfax County, located just outside of Washington, D.C., in northern Virginia, is the most populous county in the state. These bonds were issued for the construction of a 30,000 square foot, two-story community center integrated into the Dominion Square affordable housing project in Tysons, VA. The facility will include a gymnasium, kitchen, and a variety of multipurpose, meeting and community spaces. It will be available to all county residents, although it's anticipated that Dominion Square residents will be the primary users.

The Dominion Square project is the **first affordable multifamily housing development in Tysons** — a meaningful milestone in that Tysons is the 12th largest

business district and the largest suburban business district in the country. To be built on the site of a former car dealership, the project will feature **more than 500 units targeting households earning 60% or less of the area median income (AMI)**. Integration of the community center is considered vital to the project's success, and the development process included three community engagement forums to receive feedback on the center and its role. Importantly, county programming for the center will likely be multigenerational, not exclusively youth-focused, to encourage broad participation. Fairfax County's Neighborhood and Community Services department maintains updated programming and activities for each of its community centers.

Originally appeared in 2024 impact insights report



Community and economic development

CITY OF DETROIT HOUSING REVITALIZATION



UN SDG
ALIGNMENT

Measurable impact in 2023

- Homes demolished: 5,270
- Homes stabilized: 1,971

LOS ANGELES, CALIFORNIA SOCIAL BOND PROGRAM “HHH HOMELESS REDUCTION”



UN SDG
ALIGNMENT

Measurable impact in 2023

- Access to housing including displacement, workforce, and affordability: 4,251
All units are at or below 80% AMI
- 70 supportive housing apartment developments were ready for occupancy, with the majority (58) designated as transit-oriented development, or TOD

Originally appeared in 2024 Global fixed income impact report



A tale of two (big) cities

Outcomes attributable to affordable housing programs may be easier to quantify, but the stability and desirability of housing helps define a community’s health and vibrancy – in short, its quality of life. Moreover, what at first glance appear to be hyperlocal, community-specific problems related to housing costs and quality may ultimately prove to be challenges for regional economies. There is a strong connection between stable housing and lower crime rates. Thriving urban communities depend on residents who want to live and businesses that want to operate within them, which generates both financial and social capital.

Any number of factors might attract people and companies to a community. But crime, homelessness and falling property values are often the leading cause of flight. Nuveen’s investment in social bonds from two large U.S. cities illustrate the wide range of programs and projects that can help reduce crime, assist the long-term unhoused, and rehabilitate housing stock — all of which contribute to stable or increasing property values, a stronger tax base and a higher quality of life for community residents.

Reducing blight and strengthening property tax rolls in the Motor City

The concept of land banking isn’t unique to Detroit, Michigan, but raising private capital via the debt market to finance the effort is. Cities and states typically finance these types of programs via general budgets and grants to address properties that have ended up in tax foreclosure and therefore no longer produce revenue for the taxing authority. Abandoned and dilapidated housing is transferred to the land

bank, where the lots can be cleared or improved, enticing developers or residents to occupy the properties and return them to the tax rolls, ultimately making residential areas more appealing.

Historically, combining individual lots into larger parcels has tended to work better in commercial districts, as residential land banking can be a complex undertaking. Abandoned homes represent arson risk and can be hubs for crime and drug use. Owners and occupants are important in minimizing these social costs. Detroit’s program includes opportunities for buyers to purchase properties cheaply without having to pay back taxes, and then to rehabilitate them. Alternatively, the program may demolish houses to make the lots more attractive to developers.

In November 2020, Detroit voters approved a \$250 million bond program to fund the city’s Neighborhood Improvement Plan (NIP) by a margin of 70% to 30%. As described on its website, NIP addresses vacant houses in Detroit neighborhoods through property demolition and stabilization to enhance property value, stimulate economic activity and create value for residents. Stabilization consists of rehabilitation and remediation activities that prepare vacant homes for sale, including but not limited to trash removal, boarding up windows, securing entryways, tree removal and basement pump-outs.

Nuveen originally purchased the Detroit Proposal N (Neighborhoods) bond in February 2021, when the city issued \$175 million of voter-approved debt. At the time, the city carried below-investment grade credit ratings of BB- from S&P and Ba3 from Moody’s.

In many ways, the city’s vision for NIP — that blight reduction pays dividends to both residents and municipal finances — has helped improve Detroit’s credit ratings. By the time the remaining \$75 million of approved bonds were issued in July 2023, S&P and Moody’s had both upgraded the city two notches, to BB+ and Ba1, respectively. And since that time, the city has re-entered the ranks of investment grade issuers, with Moody’s upgrading Detroit’s rating to Baa2 in March 2024 and S&P following with a BBB issuer rating in April 2024.

MOODY’S RATING SCALE – DETROIT

Aaa		
	Aa1	
	Aa2	
Aa	Aa3	
	A1	
	A2	
A	A3	
	Baa1	
	Baa2	March 2024
Baa	Baa3	
	Ba1	April 2023
	Ba2	March 2022
Ba	Ba3	January 2021
	B1	
B	B2	
	B3	
Caa	Caa1	
	Caa2	
	Caa3	



COMMUNITY AND
ECONOMIC DEVELOPMENT

Urban
revitalization

The success of the NIP program and the city’s improving fortunes are part of a virtuous cycle that enables Detroit to sustain the program at a lower cost of capital, which means it can be expanded or implemented more efficiently. The 2023 issue was thirty times (30x) oversubscribed, enabling the issuer and its underwriters to reduce the interest expense by 25 to 50 basis points.

As of 31 December 2023, the bonds had funded 5,270 demolitions and 1,971 stabilizations, using slightly more than \$150 million of the debt proceeds.

Reducing crime and improving quality of life in the City of Angels

Whereas urban blight such as Detroit experienced may be the biggest obstacle discouraging residents and businesses from locating or staying in a given community, a homeless presence and increased crime may be a larger cause of displacement in other urban locations. By reducing homeless presence outside of storefronts and commercial districts and reducing the incidence of violent crime and theft within the unhoused population, a community can become more desirable, and its property values more stable. Permanent supportive housing seeks to address needs beyond basic shelter, including mental and physical health services, education and job training, and drug and alcohol treatment. Additionally, supportive housing programs with a humanistic drive can help reduce tenant turnover (thereby limiting increased program costs), sustain permanent housing versus temporary placements, and ultimately deliver positive economic outcomes via increased labor market participation and lower crime rates.

In 2016, voters in Los Angeles, California, approved Proposition HHH to create new supportive housing for individuals and families in the city. Passage required “a two-thirds vote of the qualified voters of the City of Los Angeles,” as the plan authorized a \$1.2 billion social bond to reduce the homeless population via supportive housing. The bond’s proceeds are directed to the Supportive Housing (SH) Loan Program, which funds brick-and-mortar construction projects by subsidizing roughly 30% of development costs. Proceeds do not finance building operations or supportive services for eventual tenants; these costs are funded separately.

The need for permanent supportive housing that provides shelter, safety, and stability is acute, and access for low- and extremely low-income populations is especially important. Many individuals and households in these income categories experience highly unstable housing situations immediately prior to becoming homeless, so providing necessary resources beyond just physical shelter is key to avoiding their quick return to unstable environments and to ending a perpetual cycle between housed and unhoused status. According to a 2023 statewide study of homelessness conducted by the University of California at San Francisco: “In the six months prior to homelessness, the median monthly household income was \$960. A high proportion had been rent burdened. Approximately one in five participants (19%) entered homelessness from an institution (such as a prison or prolonged jail stay); 49% from a housing situation in which participants didn’t have their name on a lease or mortgage (non-leaseholder), and 32% from a housing situation where they had their name on a lease or mortgage (leaseholder)”.

MEDIAN VALUE OF OWNER-OCCUPIED
HOUSING UNITS

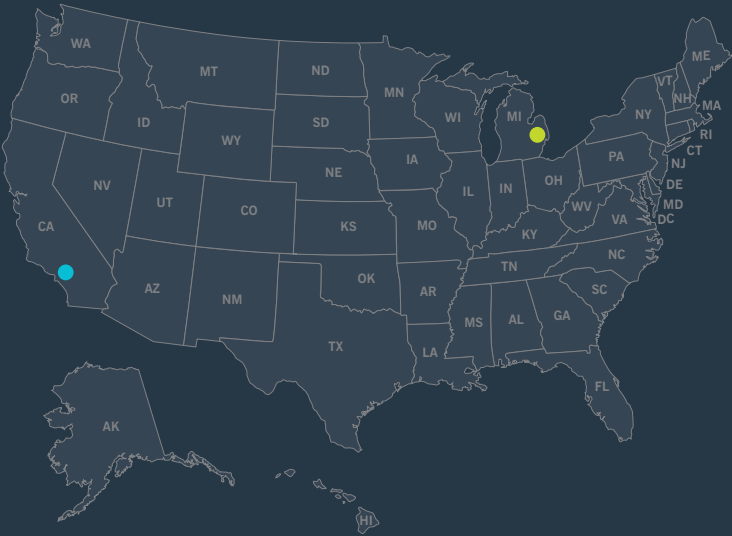
2018-2022

LOS ANGELES, CALIFORNIA

Median value: \$822,600

DETROIT, MICHIGAN

Median value: \$66,700



Population size

3.8 million residents

0.6 million residents



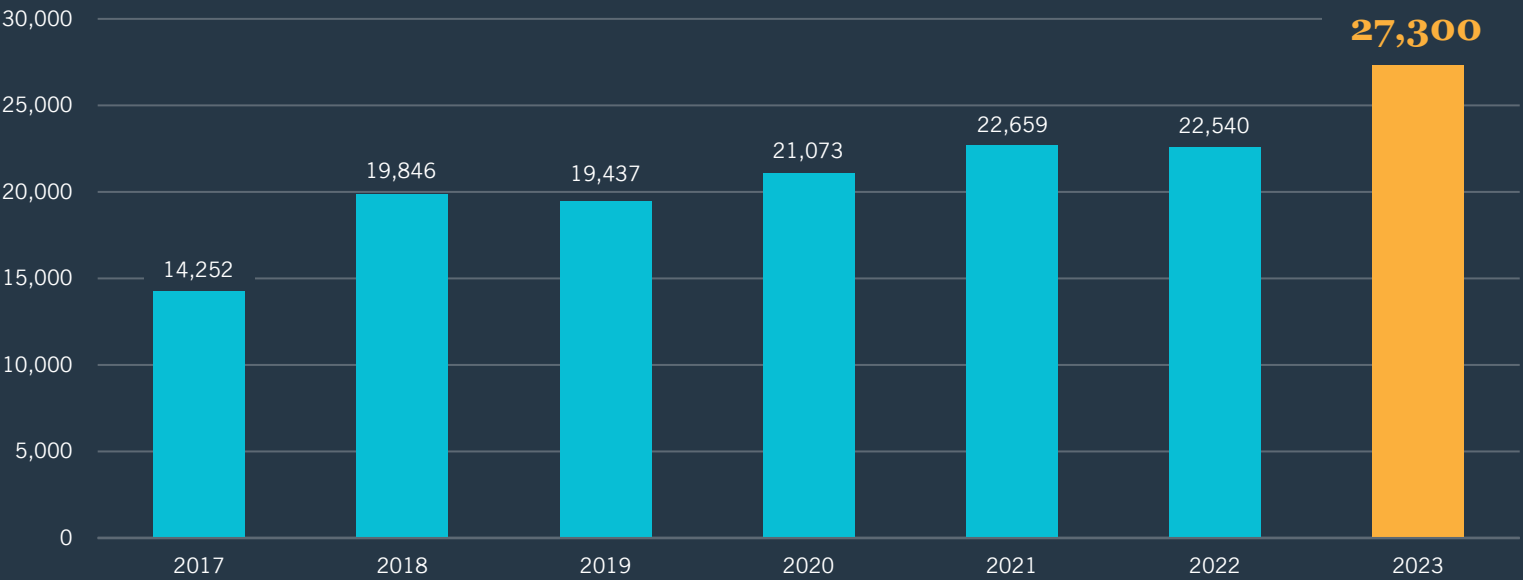
COMMUNITY AND
ECONOMIC DEVELOPMENT

Urban
revitalization

Against this backdrop of critical need, the Prop HHH SH Loan Program requires projects to commit a minimum of 50% of the units to SH for homeless individuals and families, with at least 50% of the SH units designated for the chronically homeless. Alternatively, a minimum of 20 units must be reserved for SH, and then only the eligible SH units can be funded with HHH proceeds. The SH tenants must be either in the “extremely low income” (up to 30% of the area median income, or AMI) or “very low income” (up to 50% of AMI) category, as defined by the U.S. Department of Housing and Urban Development (HUD).

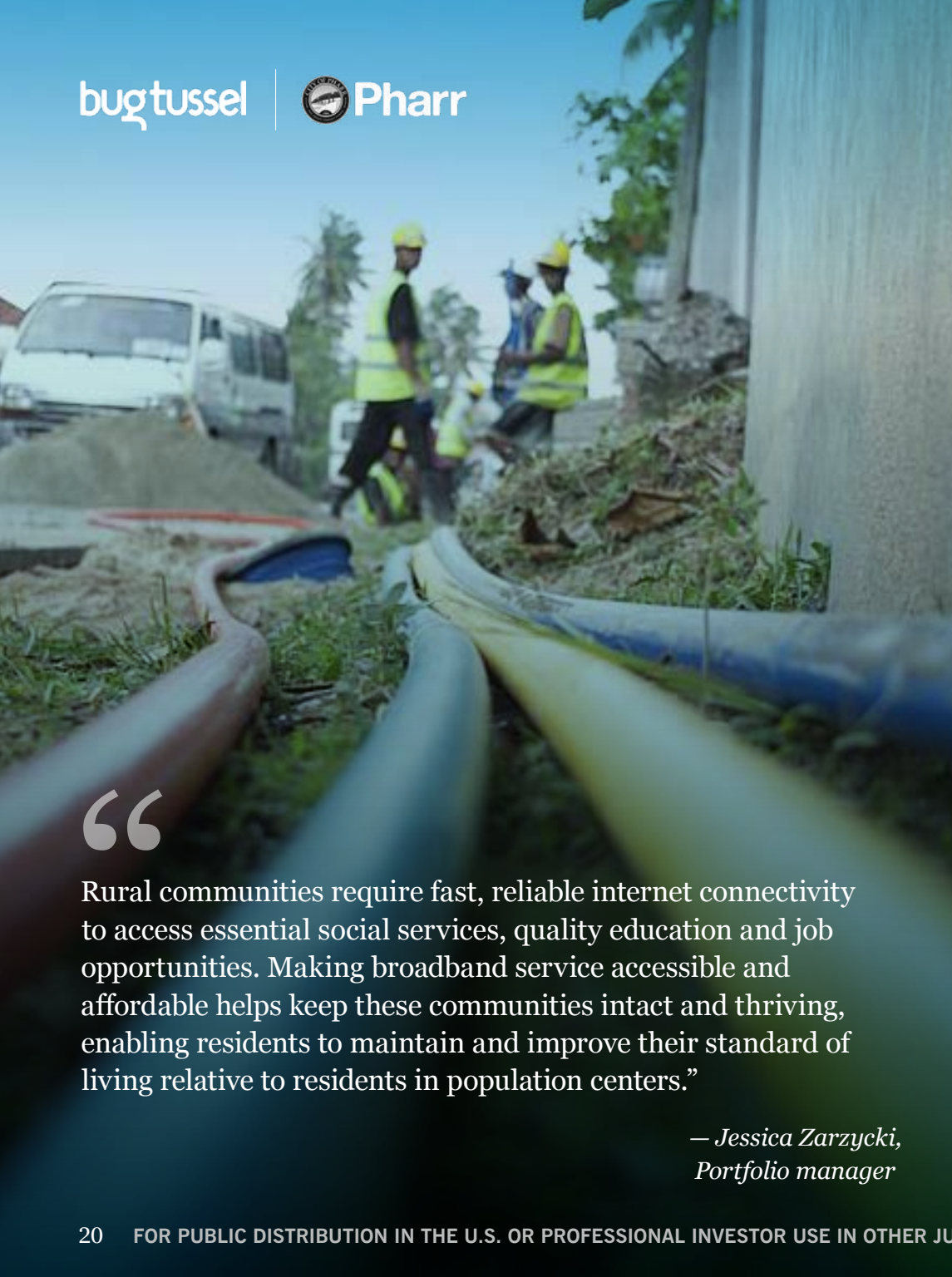
Through the SH Loan Program, by year-end 2023, 70 supportive housing apartment developments were ready for occupancy, with the majority (58) designated as transit-oriented development, or TOD). TOD focuses on locating residential and commercial space within walking distance of public transportation. Overall, the developments funded by the program introduced 4,251 new housing units in the city for residents who are at or below 80% AMI.

Permanent housing placements in Los Angeles county



Source: Greater Los Angeles Homeless Count 2024

2023 had a
record number
of permanent
housing
placements



“

Rural communities require fast, reliable internet connectivity to access essential social services, quality education and job opportunities. Making broadband service accessible and affordable helps keep these communities intact and thriving, enabling residents to maintain and improve their standard of living relative to residents in population centers.”

— Jessica Zarzycki,
Portfolio manager



Community and economic development

RURAL BROADBAND

Rural communities have long struggled to obtain adequate cellular and internet service. This is primarily because large national carriers cannot justify the infrastructure expense for limited potential subscriber bases in sparsely populated areas; dense population centers provide a far higher return on investment. Those cold economic facts were put in stark relief as COVID shifted government services, business activity, and schooling online.

Nuveen invested over \$30 million in three new-issue impact securities in 2022 to develop and improve broadband access in rural communities. Most impressive is the speed and efficiency with which projects have been launched and scaled, providing access to households and narrowing the digital divide.

Pharr is a city in southern Texas, located along the Rio Grande and the U.S./Mexico border, with a population of roughly 80,000. The city owns and operates an important border

crossing for commercial traffic. In 2022, the median household income of Pharr households was \$45,016, and 30% of the population lived in poverty. Pharr was ranked the worst connected U.S. city by the National Digital Inclusion Alliance (NDIA) in 2019, among 625 U.S. cities or Census designated areas with populations of 65,000 or more. Nearly 60% of its households lacked broadband — almost double the percentage of the second worst city on the list (Harlingen, Texas at 34%).

Originally appeared in 2023 Global fixed income impact report



“

We were facing a huge digital divide and we needed to level the playing field or risk being left behind. The most sustainable solution was for us to take on broadband as a utility. That has allowed us to control the quality, reliability, and affordability of Wi-Fi services for residents.”

—Dr. Ambrosio Hernandez, City of Pharr mayor

The city announced it would build its own fiber network in mid-2021 and issued a \$54.6 million taxable municipal bond in late March 2022 to fund construction. Despite some delays in procuring equipment due to COVID-induced inventory shortfalls, the city had installed the fiber network by October 2022 and the mayor reported in January 2023 that the project was 72% complete citywide and “100% complete in south Pharr, which was the most disconnected area in the nation.”

Our team was attracted to the bond, even though it was a smaller issue that wouldn’t be index-eligible due to its size and not labeled as a social or sustainable bond. But the potential outcomes were clear and the proceeds were dedicated to the program. Moreover, the team saw a triple benefit from bond repayment backed by sales tax receipts,

not by the broadband system itself. First, bondholder repayment was not tied to a start-up enterprise. Second, the higher credit rating associated with the security lowered borrowing (and project) costs. Lastly, and most importantly, the structure of the deal allowed the city to keep subscriber costs low to facilitate the twin goals of affordability and access. This is a model we support, and we will advocate for similar structures as we engage on future deals.

Affordability is a key outcome in another 2022 bond, this one from the memorably named issuer Bug Tussel, which is deploying capital quickly to scale its network in rural communities in Wisconsin. Nuveen invested in Bug Tussel’s second social bond to develop broadband networks in seven of the state’s rural counties. The company’s first social bond, issued in late 2021, is funding similar initiatives in five other counties.

The August 2022 issue raised \$92 million of capital and is expected to finance the installation of 66 towers. These towers will host a variety of telecommunications equipment anticipated to result in over 7,000 fixed wireless subscribers and over 16,000 fiber optic subscribers. As part of its arrangements with the seven counties, the issuer agreed to cap subscriber fees for high-speed service (minimum 25 megabytes per second, or Mbps), and offer a “lifeline” fee option for 10 Mbps broadband, a concept

MINIMUM BROADBAND SPEED NEEDED FOR
COMMON INTERNET FUNCTIONS

General usage

General browsing and email	1 Mbps
Streaming online radio	0.5 Mbps
Student work	5–25 Mbps
Telecommuting	5–25 Mbps
Downloading files	10 Mbps

Watching video

Streaming high definition (HD) video	5–8 Mbps
Streaming ultra HD 4K video	25 Mbps

Videoconferencing

HD personal video call (e.g., Skype)	1.5 Mbps
HD video teleconferencing	6 Mbps

Gaming

Game console connected to the internet	6 Mbps
Online multiplayer	6 Mbps



COMMUNITY AND
ECONOMIC DEVELOPMENT



normally associated with water as an essential service. The vast majority of the land areas in those counties have internet service below 5 or 10 Mbps, and some communities have none at all.

Bug Tussel is a subsidiary of Hilbert Communications, a regional telecommunications company based in Green Bay, Wisconsin. According to its website, the issuer’s goal is to deliver internet service in rural areas where larger carriers chose not to or were unable to provide service. Rural communities in general, including many in Wisconsin, have long struggled to obtain adequate cellular and internet service due to low population densities and limited potential subscriber bases. As a smaller, regional operator with lower overhead operating expenses, Bug Tussel partners with counties throughout the state to provide broadband service to residents. These partnerships and arrangements open up access to grants, low-cost loans and lower-cost financing via the bond market than would otherwise be possible.

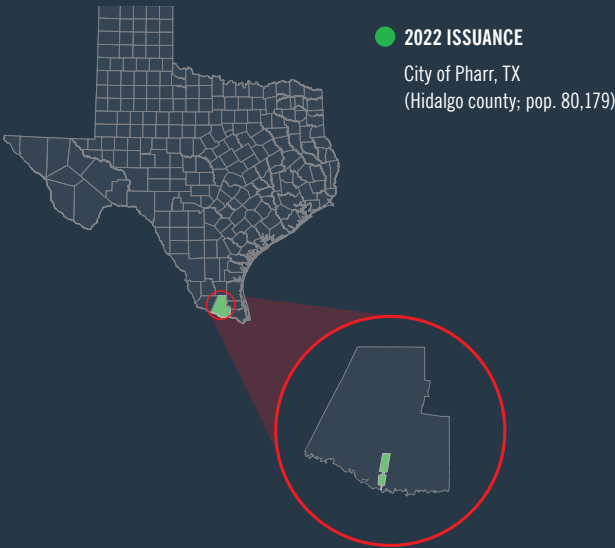
For calendar year 2022, using proceeds from both transactions, Bug Tussel added 2,400 broadband access customers. Proceeds from the 2021 issuance activated 57 tower sites and installed 330 miles of fiber conduit in five counties with an average population of 68,000 people. The seven target counties in the 2022 deal average 61,000 residents.

Both Pharr, Texas, and Bug Tussel issued in the taxable municipal market. Nuveen invested in a third 2022

community broadband deal (from National Rural Utilities Cooperative) in the corporate market and a 2023 Frontier Communications deal that came through the asset-backed securities (ABS) market. According to portfolio manager Jessica Zarzycki, this diversification indicates that issuers are seeking out the most cost-effective financing to provide affordable, reliable access in rural communities.

MAPPING RURAL BROADBAND

Texas

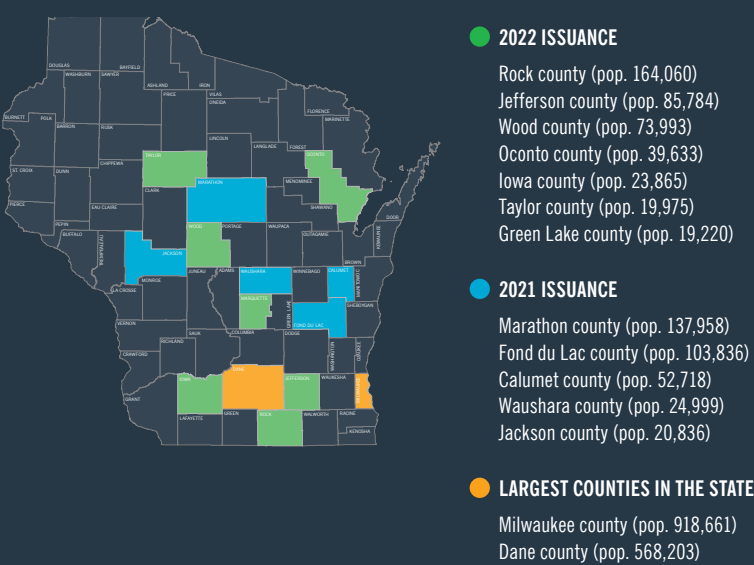


“

Reliable internet service went from being a luxury to an absolute necessity, a priority. Without it, many families lacked the ability to connect to schools, to their jobs, even looking for medical assistance, and for employment opportunities.”

—Dr. Ambrosio Hernandez, City of Pharr mayor

Wisconsin



“

One of the most powerful aspects of these bonds is that they embed financial literacy and empowerment into community development. It's not just about individual women. There's also a multiplier effect on future generations of these historically underserved populations as they gain more understanding and agency over their financial lives.”

*Jessica Zarzycki, CFA
Portfolio manager, ESG/Impact – Global Fixed Income*



Community and economic development

WOMEN'S LIVELIHOOD BOND SERIES

ALIGNMENT WITH SDGS:



Impact Investment Exchange (IIX), a Singapore-based financial institution whose mission is “to create an inclusive financial system where women, the environment and disadvantaged communities are valued and have a voice,” developed an impact assessment framework that includes five primary outcomes for the bond's beneficiaries.

Mission and intended outcomes

The Women's Livelihood Bond provides private capital to microfinance institutions and social enterprises that, in turn, help low-income Southeast Asian women build credit histories and transition from subsistence to sustainable livelihoods. Long-term benefits, in addition to more successful women-owned businesses, include increased participation in the workforce, higher standards of living, and more education and health opportunities for women and children.

Measurable impact

1. 21% more than the original target of 25,650 women have benefited
2. 27,500 women have taken advantage of micro loans to meet business-related needs
3. 21,690 have availed themselves of micro savings products
4. 2,700 have enhanced their knowledge and skills through training sessions
5. 1,775 women farmers are being sourced for agricultural goods

Originally appeared in 2021 Global fixed income impact report

In addition to the number of women supported, the bond's impact is measured by a metric known as Social Return on Investment (SROI), which assigns a dollar value to the outcomes. WLB2 met its SROI goal of 3.21, or \$3.21 of social impact for every \$1 invested.

Investors in WLB2 receive both public and private credit protection, with a 50% loan portfolio guarantee from the United States Agency for International Development (USAID) and first loss capital provided by The Rockefeller Foundation.



COMMUNITY AND ECONOMIC DEVELOPMENT



The Women's Livelihood Bond (WLB) series consists of multi-country, gender-focused debt securities managed by Impact Investment Exchange (IIX). IIX believes “we are the pioneer in impact investing and the global leader in sustainability. We have transformed the financial system so that women, the environment and underserved communities are finally given a value and a voice in the global market.” IIX seeks to create a billion sustainable livelihoods by 2030.

The series was launched with the \$8.5 million WLB1 in 2017, followed in 2020 by two separate issues, WLB2 (\$12 million) and WLB3 (\$30 million). Nuveen is a leading institutional investor in both of the 2020 bonds.

WLB2: Empowering women in developing countries to transition from subsistence to sustainable livelihoods

Proceeds from WLB2 provide capital to a total of six borrowers in Cambodia, Indonesia and Sri Lanka operating in three sectors: small- and medium-sized enterprise (SME) lending, renewable energy and sustainable agriculture. These borrowers, in turn, provide capital and low-cost financing to women working in these sectors.

WLB3: Putting women at the center of COVID-19 resilience

The third bond in the series is broadly similar to the second, but there are nuanced differences in structure and features. Relative to WLB2, WLB3 has:

1) A larger deal size (\$30 million vs. \$12 million); 2) More borrowers (eight vs. six); 3) More countries (four vs. three, with the addition of India and the Philippines, and Sri Lanka no longer included); 4) More industries (five versus four, with the addition of ethical garment making); 5) A higher social return on investment (SROI) goal (4.0 vs. 3.21).

Additionally, WLB3 has an intentional COVID-19 focus and is expected to benefit the lives of 180,000 women and women



**Watch the video
“Make your impact”**

entrepreneurs in South and Southeast Asia as they respond, recover from and build community resilience during and after the pandemic.

Lastly, investors in WLB3 receive both public and private credit protection, with a 50% loan portfolio guarantee from the United States International Development Finance Corporation (DFC) and first loss capital provided by IIX's recently launched Women's Catalyst Fund.

The gold standard of impact reporting

Impact certification and reporting for the WLB series is aligned with the International Capital Markets Association (ICMA) and Association of Southeast Asian Nations (ASEAN) social bond principles. WLB investors receive both financial and impact reports on an annual and semiannual basis. Annual impact reports include data from the field collected directly from end beneficiaries, while ongoing monitoring of borrowers' financial and impact performance during the lifetime of the bond provides risk mitigation and accountability to bondholders.

“The scope, detail and frequency of the WLB impact reports provide remarkable clarity for investors,” says Stephen M. Liberatore, CFA, portfolio manager and Head of ESG/impact – Nuveen global fixed income. “This transparency represents the gold standard of reporting.”

With its emphasis on SROI and transparent impact data collection, the WLB series offers a model for other issuers of impact bonds to follow.

Renewable energy and climate change

Hanwha Qcells ▶

Arab Petroleum Investments
Corporation ▶

Tesla ▶

Continental
Wind, LLC ▶

Sunrun, Inc.
LLC ▶



Renewable energy and climate change

CASE STUDY: HANWHA QCELLS



Meeting the demand for solar energy

Hanwha Qcells, headquartered in Seoul, South Korea, is one of the world's top 10 producers of solar photovoltaic wafers and modules. These bonds were issued to finance the construction of a new 3.3-gigawatt (GW) solar panel manufacturing facility in the state of Georgia. It will produce essential components for developing the U.S. solar power industry. The new facility will be located near another Hanwha Qcells plant that opened in 2019 to manufacture 1.7 GW modules but recently expanded to 5.1 GW capacity. Together, the two facilities will be a significant driver of energy transition manufacturing in the southeastern United States.

According to the U.S. Energy Information Administration (EIA), U.S. **solar energy capacity is projected to grow 75%**

from 2023 to 2025, placing it on par with wind power capacity, which is projected to grow only 11% over the same period. The growth in solar would equate to nearly **60 GW of new capacity over the next two years, representing a large percentage of global demand**. While Chinese solar manufacturing could potentially meet that demand, various political, legal and humanitarian considerations provide a strong incentive for the United States to “onshore” solar panel manufacturing. Between the 2019 plant opening, its expansion, and the new facility, Hanwha Qcells has demonstrated its commitment to the U.S. solar industry — especially considering that the original Georgia plant was built before additional solar manufacturing incentives became available under the Inflation Reduction Act (IRA) of 2022. The IRA is providing a catalyst to match EIA growth projections, and Qcells is positioning to meet that growth.

Originally appeared in 2024 impact insights report



Renewable energy and climate change

ARAB PETROLEUM INVESTMENTS CORPORATION (APICORP)



UN SDG
ALIGNMENT

Measurable impacts in 2023

- CO₂ avoided: 1,646,098
- Total renewable energy capacity: 8,490 MW
- Renewable energy generated: 891,847 MWh
- People who benefited from clean water and wastewater projects: 166,071
- Waste diverted from landfills: 68,505 metric tons
- Wastewater treated: 53 million gallons/day

Green bonds bring clean energy to the Middle East and Northern Africa

The Arab Petroleum Investments Corporation (APICORP), a development finance institution focused primarily on the Middle East and Northern Africa (MENA) region, unveiled a new identity and new strategic vision at the 2023 United Nations Climate Change Conference (also known as COP 28).

In its 2023-2028 strategy, APICORP — now known as The Arab Energy Fund (TAEF) — pledged up to \$1 billion for energy transition, decarbonization and related technologies to support the shifting energy landscape toward a net-zero world.

Originally appeared in 2024 Global fixed income impact report



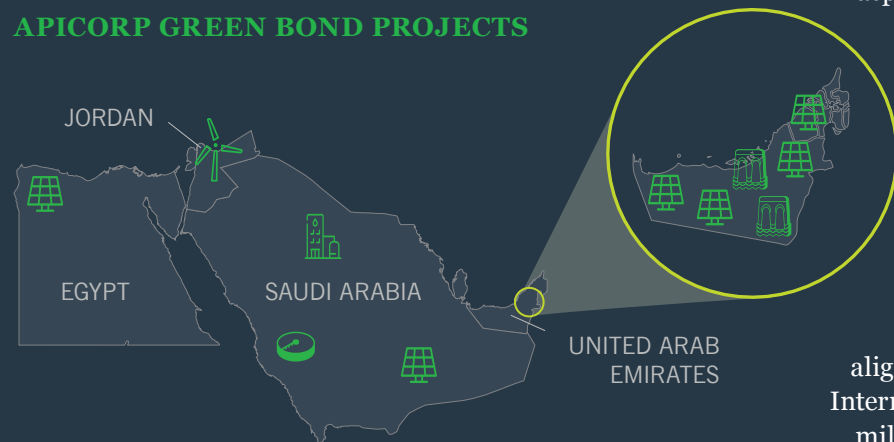
RENEWABLE ENERGY AND CLIMATE CHANGE








Broadly, TAEF's mission is to (1) serve as the energy transition's core financier within the MENA region; (2) support the sustainable economic development of its 10 oil-exporting member nations* through a range of green financing solutions and (3) diversify energy sources. Achieving these goals helps export renewable generation technology throughout the region.

TAEF provides funding for renewable projects like solar power plants — usually at more favorable rates than those available through commercial lending — with capital derived from fossil fuel-based sales. Bond proceeds may not be used to support activities related to fossil fuels.

APICORP GREEN BOND PROJECTS



 Green hydrogen facility	 Water treatment facility
 Solar power	 Wind power
 Waste processing and energy facility	

Development finance in the global south

Until recently, development funding has flowed primarily from the developed northern hemisphere to developing countries, mainly in the global south. TAEF, and other development finance institutions like the OPEC Fund for International Development, help upend the traditional north-to-south flow of capital, building wealth and technical expertise within the MENA region.

TAEF is uniquely positioned as all ten members are former colonies/protectorates with varied traditions of government. This holds appeal to recipient nations in the global south, as the sources of capital can be viewed as inspiration, or aspirational examples of how economic growth can promote economic independence.

In our view, the energy transition requires massive inflows of capital, and, for various reasons, the global south can struggle to attract such capital. TAEF plays an important role by providing funding where it's most needed.

To help achieve its objectives, in September 2021 APICORP (as it was known then) issued bonds aligned with the Green Bond Principles established by the International Capital Market Association (ICMA). The \$750 million deal matures in October 2026 and is highly rated.

Moody's assigns a Aa2 rating, while Fitch upgraded the security from AA to AA+ in June 2024, both of which land solidly within investment grade territory.

Nuveen's engagement

Our ESG/Impact investment team met with APICORP three times prior to issuance to assist in the development of its green bond framework and to verify that the offering met our impact criteria. Before we invest in an impact bond, we ensure its proceeds will fund projects or initiatives that deliver a clearly defined environmental or social benefit. In this case, proceeds from the 2021 APICORP issuance are eligible for projects in the following categories:

- Renewable energy, such as wind and solar, along with the development of transmission infrastructure
- Pollution prevention, including waste collection and treatment
- Green buildings that qualify for LEED gold standard or equivalent. LEED (Leadership in Energy and Environmental Design) is the world's most widely used green building rating system, recognized in 186 countries and territories.

Critically, which is why we're repeating it: activities related to fossil fuel extraction or energy production are not eligible projects.

** Algeria, Bahrain, Egypt, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, Syria and the United Arab Emirates.*



RENEWABLE ENERGY
AND CLIMATE CHANGE



The APICORP bonds funded the following outcomes across 11 projects in the MENA region, as shown below:

Country	People who benefited from access to basic products & services	CO2-equivalent emissions avoided	Total renewable energy capacity (MW)	Renewable energy generated (MWh)	People who benefited from clean water and wastewater projects	Waste diverted from landfills (metric tons)	Wastewater treated (million gallons/day)
UAE		1,092,310	2,823	352,242		68,505	
Saudia Arabia		434,564	5,350	411,356	166,071		53
Jordan	17,000	51,122	117	35,087			
Egypt		68,102	200	93,162			
TOTAL	17,000	1,646,098	8,490	891,847	166,071	68,505	53

“The Arab Petroleum Investments Corporation (APICORP) mandate includes a focus on financing a balanced approach to energy transition within the MENA region. Through issuing in green, APICORP has taken upon itself to cement its commitment towards supporting sustainable energy sources. We firmly believe that as corporations adopt more sustainable funding solutions, our economies achieve greater strides towards a greener future.”

— APICORP Impact Report 2023

Wastewater management can have a substantial impact on the sustainability of water supplies, human health, the economy and the environment. In the Arab world:

- about half the population lives under extreme water scarcity (less than 500 cubic meters per capita annually)
- 18 of the 22 Arab countries fall below the water poverty line (less than 1000 cubic meters per capita annually).



“The ABS collateral pools are separate legal entities from the corporation, with excellent transparency. From a green bond perspective, we like that the ABS are financing EV purchases. From a credit quality perspective within ABS, we like the very high quality of borrowers in the pools.”

— Stephen M. Liberatore, CFA, portfolio manager and Head of ESG/Impact



Renewable energy and climate change

TESLA

Measurable impact

- Total CO₂ avoided (metric tons): 209,104

Tesla’s mission is to accelerate the world’s transition to sustainable energy. As a leader of clean technology practices in the automobile industry, Tesla pursues this goal primarily through the development and sale of all-electric vehicles. The company also develops storage and scalable clean energy generation products, such as solar roofs and panels.

Tesla supports the affordability and lease financing of its automobiles by issuing asset-backed securities (ABS). These all-electric vehicle (EV) collateral pools are a perfect fit for impact portfolios, as deal proceeds are helping to finance the consumer purchase of EVs and putting them on the road. Notably,

the structure also mitigates governance concerns with the company itself. Our ESG/impact portfolios don’t invest in Tesla corporate bonds/general corporate debt instruments, as we struggle to confidently predict the strategic decision-making of the founder-led enterprise. According to Stephen M. Liberatore, CFA, portfolio manager and Head of ESG/Impact, “The ABS collateral pools are separate legal entities from the corporation, with excellent transparency. From a green bond perspective, we like that the ABS are financing EV purchases. From a credit quality perspective within ABS, we like the very high quality of borrowers in the pools.”

Originally appeared in 2023 Global fixed income impact report



RENEWABLE ENERGY
AND CLIMATE CHANGE



Nuveen began investing in Tesla EV ABS with the inaugural issue in 2018. That pool of loans consisted largely of leases on Tesla’s higher-priced vehicles, such as the Model S and Model X. In contrast, the less-expensive Model 3 made up a majority of the 2021 pool. “This shift in allocation was a key part of our decision to participate in the (2021) deal,” notes Liberatore. “Given the ability of electric cars to reduce greenhouse gas emissions, we felt it was essential to help reduce the cost of capital for financing them.”

The ABS market provides an ideal source of funding for this type of impact investment. Consumer ABS has been a staple in high grade U.S. fixed income indexes for years, albeit at

a much smaller sector allocation than the big three sectors of US Treasuries, US agency mortgage-backed securities (MBS), and corporate bonds. Beyond the agency MBS market, typical indexes include sufficiently large issues of consumer credit card, auto and student loan collateral. “Securitization is one of the primary reasons people can hold credit cards and buy homes. With Tesla offering more affordable options and the cost of electric vehicles declining as the technology advances and economies of scale are achieved, ABS will catalyze the rate at which EVs are purchased and driven,” Liberatore explains.


In 2022, Tesla’s global fleet of vehicles, energy storage and solar panels enabled customers to avoid emitting 13.4 million metric tons of CO₂, the equivalent of providing electricity for over 2.6 million homes for one year.

While the average weighted cost of Tesla’s cars in the ABS pools has fallen, the weighted average FICO score of borrowers in the pool has risen from 767 in 2018 to 789 in 2021, instilling greater confidence among lenders — and investors like Nuveen.


LOWER COST OF TESLA’S VEHICLES
REFLECTED IN ABS ASSET POOLS

Average weighted cost of Tesla model	
2018 (inaugural pool)	\$68,486
2021	\$47,883


Per Tesla’s 2022 impact report, the average mid-size vehicle in the U.S. emits approximately 400 grams of Co₂/mile driven in its lifecycle. A grid-charged Model 3 emits fewer than 150 grams of CO₂/mile driven and fewer than 100 grams for a Model 3 charged through renewables.




Average mid-sized vehicle




Grid-charged Tesla Model 3




Tesla Model 3 charged through renewables



~400
grams per mile driven



<150
grams per mile driven



>100
grams per mile driven

Continental Wind, LLC

“

This was one of the first times we were able to make an impact investment directly in a subsidiary. That’s a critical distinction because, at the time, the parent company was not part of our eligible universe. Here we could take advantage of the fact that impact issuance in public fixed income is possible at different parts of the corporate and capital structure.”

— Stephen M. Liberatore, CFA,
Head of ESG/Impact – Global Fixed Income



Renewable energy and climate change

CONTINENTAL WIND, LLC

ALIGNMENT WITH SDGS:



Mission and intended outcomes

To help finance the wind portfolio while clearly conveying to the parent company that we will be a source of capital for renewable projects but will not invest in its general utility operations, where fossil fuel inputs, emissions, and the overall pace of transition to renewable energy sources do not match our impact criteria.

To benefit from long-term contracts as well as diversity in technology, geography and offtakers. (An “offtaker” is a purchaser of power produced by a renewable energy asset, such as a wind farm.)

Measurable impact

In 2020, the ExGen/Continental Wind portfolio generated:

- 1,985,784 MWh of electricity
- Enough energy to power 169,470 average homes for a year
- Displacement of 1.6 million tons of CO₂-equivalent emissions
- The impact of taking 306,057 cars off the road

Originally appeared in 2021 Global fixed income impact report



Continental Wind, LLC

We invested directly in Continental Wind, LLC, a renewable energy project development company, as it aligned with our impact approach of directing capital to specific projects and outcomes.

We believe this is the optimal way to invest for impact in public fixed income markets. It allows us to determine the specific use of proceeds of our investments and exert an influence on reporting methodologies that provide transparency and accountability for science-based outcomes. This is particularly necessary in the utilities and energy industries, which are significant emitters of greenhouse gases and producers/consumers of fossil fuels. Through impact investing, we have the opportunity to finance the transition to greener energy production within these hard-to-abate sectors, even if we wouldn't lend to the general operations of the issuer or parent company via traditional corporate bonds.

Continental Wind, LLC is 100% indirectly owned by ExGen Renewables I, LLC (ExGen). ExGen itself is an indirectly wholly owned subsidiary of Exelon Corporation (EXC), a large U.S. producer and distributor of utility-scale power. Continental Wind is a diversified portfolio of 13 operating wind farms with a combined capacity of 667 megawatts (MW) located across six states (Idaho, Kansas, Michigan, New Mexico, Oregon and Texas); and Continental Wind receives 100% of the cash flows generated by these facilities. We view these cash flows to be stable and of high quality, given that

97% of revenues are from long-term purchase agreements from nine separate offtakers. Through this investment, we help finance the wind portfolio while clearly conveying to the parent company that we will be a source of capital for renewable projects but will not invest in its general utility operations, where fossil fuel inputs, emissions and the overall pace of transition to renewable energy sources do not match our impact criteria.

“Investing in the 2013 loan that initially financed the ExGen/Continental Wind assets was one of the first opportunities we had to make an impact investment in a subsidiary,” recalls Stephen M. Liberatore, CFA, portfolio manager and Head of ESG/impact — Nuveen global fixed income. “The parent company was not part of our eligible universe.”

ExGen was also among the first issuers Nuveen engaged with that was willing to provide unambiguous renewable energy impact metrics, primarily in the form of megawatt hours (MWhs) of electricity generated from the wind portfolio. This put the issuer on the leading edge of direct, measurable impact reporting — a requirement and centerpiece of Nuveen's approach.



“

Conventional wisdom says adopting renewable energy sources like solar isn’t economically feasible for the average person. But with asset-backed security (ABS) structures like Sunrun’s helping drive down costs, we can show that it actually saves people money. As perception catches up with reality, we think securitized assets will become an increasingly effective way to deliver positive environmental outcomes. That’s why we always look across fixed income asset classes for impact opportunities.”

— Stephen M. Liberatore, CFA,
Head of ESG/Impact — Global Fixed Income



Renewable energy and climate change

SUNRUN, INC.

ALIGNMENT WITH SDGS:



Mission and intended outcomes

To create a planet “run by the sun” and provide distributed solar power generation, primarily through residential, rooftop solar panels.

Measurable impact

In 2020, Sunrun’s systems generated 4 billion kWh of solar power — enough to:

- Provide electricity to 514,908 homes for one year
- Displace 3.1 million tons of carbon dioxide equivalents from the atmosphere
- Achieve the comparable impact of taking 616,000,497 cars off the road for one year

Since 2007, Sunrun has cumulatively generated 11.4 billion kWh of solar power

Originally appeared in 2021 Global fixed income impact report



sunrun

Guided by its mission to create a planet “run by the sun,” Sunrun Inc. is a provider of distributed solar power generation, primarily through residential, rooftop solar panels.

The San Francisco-based Sunrun has well over half a million customers and sells its solar service in 22 states, the District of Columbia and Puerto Rico. Unlike some residential solar companies, Sunrun owns the solar assets it installs. Instead of homeowners paying the capital costs upfront, the residential units hosting the solar system enter into lease agreements with Sunrun to purchase the solar power generated, with the excess generation net-metered to the grid.

The proceeds of the asset-backed securities (ABS) series in which Nuveen invested were used to finance Sunrun installations on more than 14,000 homes.

Total system size nearly	88 MW
Average per home	6.14 kW
Number of homes capable of powering annually	19K
Annual electricity generation	154,176 MWh

Traditional solar residential installers are typically able to provide only estimates of impact because, once the systems are installed, they no longer own or have access to the solar asset. Sunrun, however, owns, meters and monitors the assets, so it is able to provide updates on actual power generation. This includes an annual impact report detailing both yearly and cumulative totals. Sunrun’s 2020 report listed 550,000 customers and 3,885 MW of installed capacity.

That’s significantly more than the current installed capacity (245 MW) of the world’s largest single solar farm, Bhadla Solar Park in India.

“The potential impact of investments like Sunrun’s is even more compelling when you think about extrapolating the approach on a larger scale,” says Stephen M. Liberatore, CFA, portfolio manager and Head of ESG/Impact – Nuveen global fixed income. “With California now requiring solar installations on all new home construction, we could start to see a broader acceleration of the transition from fossil fuels to renewable energy sources. Not only would that be good for the environment, but it would also lower the cost of distributed solar as advances in technology and greater scale lead to new efficiencies.”

The ABS market provides an ideal source of funding for this type of impact investment, Stephen adds. “Securitization is one of the primary reasons people can afford to buy houses and cars and have credit cards,” he explains. “And now that model is making it more cost-effective for issuers — and individuals — to install solar technology in homes.”

Natural resources

Thames
Tideway
Tunnel ►

Emission
Reduction-Linked
Bond ►

District of
Columbia
Water & Sewer
Authority ►

Amazon
Reforestation
Bond ►

Galapago
Blue Bond ►

Rhino
Bond ►

Republic of
Seychelles
Blue Bond ►



Natural resources

THAMES TIDEWAY TUNNEL– “LONDON’S SUPER SEWER”

ALIGNMENT WITH SDGS:



Use of proceeds

- Bazalgette Tunnel Limited (“Tideway”) designed, constructed, and maintains the Thames Tideway Tunnel (TTT).
- For over 150 years, London has relied on a sewer system originally built for a population of four million, but a growing population, increased rainfall due to a warming climate, and the loss of green space to absorb runoff have left the system overwhelmed. As a result, combined sewer overflows (CSOs) into the River Thames have risen from just one or two cases per year in Victorian times to an average of one a week, discharging millions of tonnes of untreated sewage annually.
- Proceeds from the bond will finance the TTT, which will intercept <90% of sewage discharges that previously entered the river.

Intended impact and deal structure

- While the deal is labelled blue, given the terrestrial based outcomes, we consider this aligned with green bond frameworks.
- In a typical year, the tunnel will reduce sewage discharge by ~16 million m³, which will substantially improve the ecology of the river and make it safer for recreational users.
- The “more by river” commitment significantly reduced carbon emissions by transporting nearly 6 million tonnes of construction materials via the river, keeping over 350,000 heavy goods vehicles off the road and saving 24,600 tonnes of CO₂ by March 2025.
- Strong covenants and government support, including £500mm contingent liquidity facility, insurance coverage, and equity injection for 30% cost overruns.

Originally published in November 2025



Natural resources

EMISSION REDUCTION-LINKED BOND

ALIGNMENT WITH SDGS:



Use of proceeds and intended outcomes

- The project aims to manufacture 300,000 ceramic water purifiers and distribute them to approximately 8,000 schools across Vietnam. This will provide clean water available to around 2 million children.
- The water purifiers provide cleaner, safer drinking water than current methods and will replace biomass combustion required to boil water for potable use.
- By replacing combustion of kindling and firewood, the project aspires to reduce emissions by almost three million tonnes of carbon dioxide over five years. This, in turn, will generate carbon credits that cover the cost of the purifiers and their distribution.

Deal structure and related investments

- In February 2023, Nuveen and a large European pension fund were anchor orders in the \$50 million, US dollar denominated deal.
- Proceeds go to the World Bank's sustainable programs. But instead of making scheduled, fixed coupon payments over the five-year tenor of the bond, those cash flows are diverted to a manufacturer in Vietnam to make and distribute ceramic water filters.
- Using the sale of carbon credits is innovative in two ways: it repays debt, and it is the ultimate source of clean drinking water for school children.
- Nuveen was anchor order for IBRD's Amazon reforestation-linked outcome bond in 2024, which will generate carbon removal credits as a natural carbon sink is restored.

Originally published in October 2025



Natural resources

DISTRICT OF COLUMBIA WATER & SEWER AUTHORITY

ALIGNMENT WITH SDGs:



Use of proceeds and intended outcomes

- Per the issuer's website, the DC Clean Rivers Project will reduce combined sewer overflows (CSOs) in an average rainfall year by 96 percent system-wide. Reductions will be 98% for the Anacostia River, 93% for the Potomac River and 90% for Rock Creek.
- The Project will reduce the chance of flooding in chronically impacted areas from approximately 50 percent to 7 percent (equivalent to a 15-year storm) in any given year and reduce nitrogen discharged to the Chesapeake Bay by approximately 1 million pounds per year, per the issuer's website.
- Many older U.S. cities operate combined sewer systems that use the same pipes to collect domestic sewage, industrial wastewater, and stormwater, carrying the flow to wastewater treatment facilities. During heavy rain events, CSOs occur

when the stormwater and wastewater exceed the system's capacity and are discharged untreated into local waterways.

Deal structure and related investments

- \$350 million "century bond"
- AAA (S&P), Aa1 (Moody's), AA+ (Fitch)
- Given the expected useful life of the city's CSO tunnel system, DC Water issued a century bond to help finance construction costs. The 100-year maturity aligns with the long-lived nature of the Clean Rivers Project, which is designed to be an intervention that will benefit multiple generations.
- While tunnel projects extend multiple decades, individual segments come online in phases, benefiting the system well before the full system is constructed and operational.

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Amazon Reforestation Bond

“

We are looking to invest in opportunities that have the potential to generate an attractive total return for our investors, and also find deals that allow for direct and measurable social and/or environmental outcome. This is a good example of an opportunity where we were able to find all those things.”

Stephen M. Liberatore, CFA,
Head of ESG/Impact – Global Fixed Income



Natural resources

AMAZON REFORESTATION BOND

ALIGNMENT WITH SDGS:



Use of proceeds and intended outcomes

- Proceeds will help reforest up to 3,300 hectares of degraded and deforested farmland with native tree species — roughly the same size as 7,400 U.S. football fields or 5,200 Premier League football pitches
- Brazil-based Mombak will acquire or partner with landowners in the state of Pará (which is traversed by the lower Amazon River)
- The first bond to link the level of investors’ financial returns to the amount of carbon removed from the atmosphere via generation of carbon removal credits. Carbon removal (and reduction) credits are viewed to be more desirable and less controversial than carbon avoidance credits.
- Nuveen was lead order

Deal structure

- \$225 million, 9-year World Bank outcome bond
- AAA rated issuer
- A portion of the coupon depends on the amount of CO2 removed from the atmosphere by the reforested land until the bond matures
- Relative value assessed versus conventional IBRD 10-year debt: ~6 bps of downside versus ~40bps of upside
- Nuveen worked with Mombak to ensure impact reporting would include not just carbon sequestered, but also KPIs focused on forest health, biodiversity and community impact
- Nuveen was also anchor order for IBRD’s emission reduction-linked bond in 2023. Deal generates carbon reduction credits in Vietnam via ceramic water filters for potable water in schools, displacing biomass combustion to boil water.

Originally published in August 2024



Natural resources

GPS BLUE FINANCING: GALAPAGOS BLUE BOND



UN SDG
ALIGNMENT

Measurable impact in 2023

- Marine area conserved (sq mi): 76,448

Galapagos blue bond supports sustainable fishing while protecting ecosystems

One of the most ecologically diverse areas on Earth and a designated UNESCO World Heritage Site, the Galapagos archipelago of 19 Pacific islands off the coast of Ecuador is home to at least 2,000 species found nowhere else on Earth. But despite previous efforts dating back to 1959 to protect and conserve this unique ecosystem, it continues to face substantial threats from illegal fishing, plastic pollution and climate change.

According to the Galapagos Conservation Trust, Galapagos National Park rangers removed 80,000 kilograms (~176,000 pounds) of plastic waste from the Archipelago's beaches between 2018-2023. Meanwhile, due to illegal, unreported and unregulated (IUU) fishing, Ecuador received a warning from European regulators in 2019 for not meeting EU tracking and certification standards. Fish (along with other aquatic species) is Ecuador's second-largest export (\$8.5 billion as of 2022), with half of that output typically made up of tuna exports to Europe. Illegal fishing would put this revenue — a source of hard currency reserves for the country — at risk.

Originally appeared in 2024 Global fixed income impact report



Deal specifics

In 2023, Ecuadorian sovereign debt yields surged from about 14% to 22% amid the country’s mounting deficits and political turmoil. Fitch downgraded Ecuador’s sovereign credit rating from B- to CCC+ in August 2023 (Moody’s already had the rating at Caa3, per exhibit at right). Bondholders sold about \$1.6 billion of outstanding Ecuador bonds to Credit Suisse at roughly 40 cents on the dollar, as follows:

- **Notes due in 2030:** \$202 million face value
- **Notes due in 2035:** \$1 billion face value
- **Notes due in 2040:** \$420 million face value

Credit Suisse funded the purchase by creating a new legal entity that issued the \$656 million Galapagos Marine Bond, making it the largest-ever debt-for-nature swap. The bond offers a 5.645% coupon, matures in 2040 and is rated Aa2, Moody’s third-highest credit rating. The newly created special purpose vehicle (SPV) attained a solid investment grade credit rating due to structural support that helps to derisk the transaction, including a partial coupon guarantee from the Inter-American Development Bank and political risk insurance from the U.S. International Development Finance Corporation.

This debt-for-nature swap reduced Ecuador’s outstanding debt by nearly \$1 billion and reduced debt service cost to the new lower coupon. Ecuador’s lifetime savings will exceed \$1.126 billion, improving the country’s sovereign credit profile. With the savings from lower coupon payments to bondholders, Ecuador committed to funding new nature-based programs, alongside coordination and support from the influential fisheries industry within the country.

MOODY’S RATING SCALE

Aaa	Aa	A	Baa	Ba	B	Caa	Ca	C
	Aa1	A1	Baa1	Ba1	B1	Caa1		
	Aa2	A2	Baa2	Ba2	B2	Caa2		
	Aa3	A3	Baa3	Ba3	B3	Caa3		
Galapagos Blue Bond			Ecuador					

Sustaining positive outcomes

Before investing in an impact security such as the Galapagos BlueBond, we assess the use of proceeds for alignment with our impact framework, as well as the issuer’s willingness and ability to deliver relevant outcome-based impact reporting. In this case, the government established funding for conservation and sustainable fishing projects that align with our Natural Resources impact theme.

From a reporting standpoint, Nuveen’s investment team has access to the same impact data as the Galapagos Life Fund (GLF, a nonprofit organization) and various government ministries in Ecuador that oversee sustainability and conservation. We also participate in periodic meetings with representatives of the GLF and these ministries.

Conservation funds provided: \$12 million per year, managed by the GLF and used to implement 18 separate sustainability commitments between 2023-2037. Importantly, the sustainability agreements embedded in this deal were developed with fishing industry and regulator buy-in, helping to ensure a mutually agreed-upon balance between ecological conservation outcomes and sustainable fishing practices for Ecuador’s economically vital commercial tuna fleet.

Implementation of vessel monitoring systems for Ecuador’s commercial tuna fleet to combat IUU fishing.

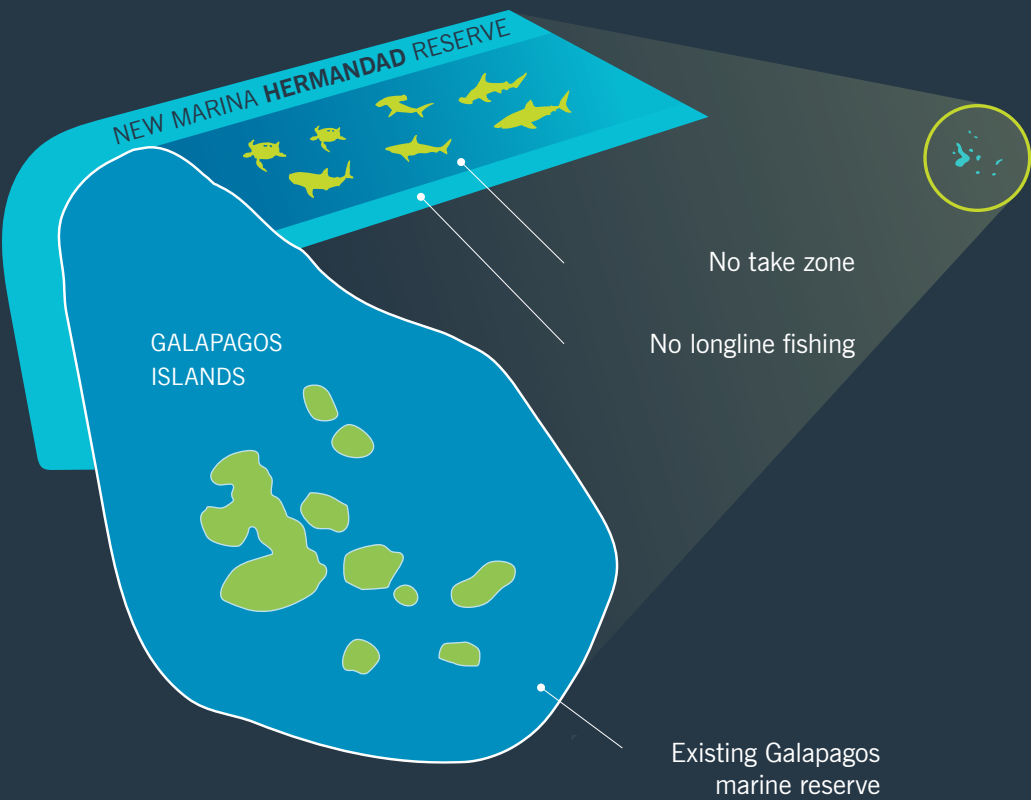
New marine area conserved: 60,000 square kilometers (twice as large as Belgium) between the Galapagos and Costa Rica, including a 30,000 square kilometer “no fishing” zone to protect migrating species such as whales and sharks, and a second zone that prohibits longline fishing (a harmful practice resulting in the unintended bycatch of endangered species).

Total marine area conserved: 198,000 square kilometers (twice as large as Portugal); a combination of new expansion and the existing marine reserve.

Endowment seeding capital raised: \$5.4 million per year to finance conservation activities. According to the Pew Research Center, when the bond matures, the endowment’s assets will have reached approximately \$227 million from the accumulated payments and investment earnings — enough to continue conservation financing in perpetuity.



GALAPAGOS MARINE PROTECTED AREAS



“The complexity of managing an open ocean area such as Hermandad Marine Reserve (HMR) requires sustained institutional strengthening, financing, and management mechanisms that foster coordination and cooperation among all the actors responsible for its conservation and commercial use. The GLF will play a crucial role in providing financial support for the effective implementation of the HMR Management Plan.”

— Galapagos Life Fund Impact Report 2024

“

The Wildlife Conservation Bond (WCB) has already made a meaningful impact for the parks and local communities in South Africa by providing essential and significant financing for rhino conservation and creating new jobs during a challenging economic period following COVID-19. The WCB has inspired the teams on the ground to deliver greater impact and serves as a template to transform how nature conservation is funded by channeling capital market resources towards sustainable development solutions in rural underserved areas of Africa and beyond. Nuveen’s important contribution as the lead WCB investor was instrumental to make the WCB operation a reality.”

—Elisson Wright,
Senior Environmental Finance Specialist, World Bank



Natural resources

RHINO BOND

Mission and intended outcomes

To protect and increase the rhino population, the World Bank issued a first-of-its-kind “Rhino Bond” — a five-year, AAA rated, \$150 million outcome-based credit that directly links investors to the survival of an endangered species. Nuveen was the lead order in the deal, which priced in early 2022.

Measurable impact

- Between 1960 and 1995, approximately 98% of the black rhino population was wiped out, mainly because of poaching and habitat loss. Although rhinos have made a comeback because of intensive mitigation efforts — their numbers have since doubled, to about 6,000 —

this “Big Five” safari animal remains critically endangered.

- As a keystone species, rhinos help other species that share their habitat, contributing to South Africa’s national economy through tourism and job creation, while simultaneously reducing the incentives for poaching.
- Conservation efforts at Addo Elephant National Park and Great Fish River Nature Reserve strengthen ecosystem services like clean water and habitats for pollinators that serve the local citrus industry. The project is expected to lead to the improved conservation of 153 thousand hectares.

Originally appeared in 2023 Global fixed income impact report



NATURAL RESOURCES

To protect and increase the rhino population, the World Bank issued a first-of-its-kind “Rhino Bond” — a five-year, AAA rated, \$150 million outcome-based credit that directly links investors to the survival of an endangered species. Nuveen was the lead order in the deal, which priced in early 2022.

Proceeds from this bond (issued by the World Bank) are designed to help increase and protect the black rhino population in two protected areas in South Africa — the Addo Elephant National Park and the Great Fish River Nature Reserve. These parks were selected for this pilot transaction based on their ecological, managerial and financial capacity to achieve positive rhino conservation outcomes.

Because the bond is a zero-coupon security, investors won't receive coupon payments. Instead, those would-be periodic payments are used to support rhino breeding programs and conservation activities, increase staffing and training, and to invest in technology, infrastructure and equipment, among other projects. To date, proceeds have purchased new trucks and trailers, enabling park rangers to cover more ground and tag rhinos rather than rely on models to estimate the rhino population. Also, because South Africa often endures

power outages of up to 10 hours a day, solar panels have been installed in the parks. All told, more than 50% of the bond proceeds have been spent.

Repayment of bond principal is guaranteed by the World Bank. If rhino population growth in the parks meets certain thresholds over the bond's five-year tenor, as measured independently by two conservation groups, investors will receive a success payment at maturity. The greater the rhino's population growth, the higher the payment. In year one, the rhino growth rate was over 7%, which exceeds the pace required to maximize the success payment.

This structure represents the positive alignment we look for in a transaction and contrasts with sustainability linked bonds (SLBs), which pay a coupon “step up” — a penalty for the issuer not meeting its target. While such a penalty payment is “good” for bondholders because of the higher coupon, it means the issuer failed to achieve its intended outcome/impact.

Nuveen was the lead investor in the offering, having assessed the potential return and relative value against outstanding, traditional, coupon-paying bonds issued by the World Bank. According to Stephen Liberatore, CFA, Head of ESG/Impact — Global Fixed Income, the Rhino Bond “provided attractive total return potential alongside the direct and measurable outcomes we look for under our proprietary impact framework. We are especially hopeful that this type of public-private partnership can serve as a template for future transactions to help improve biodiversity globally.”

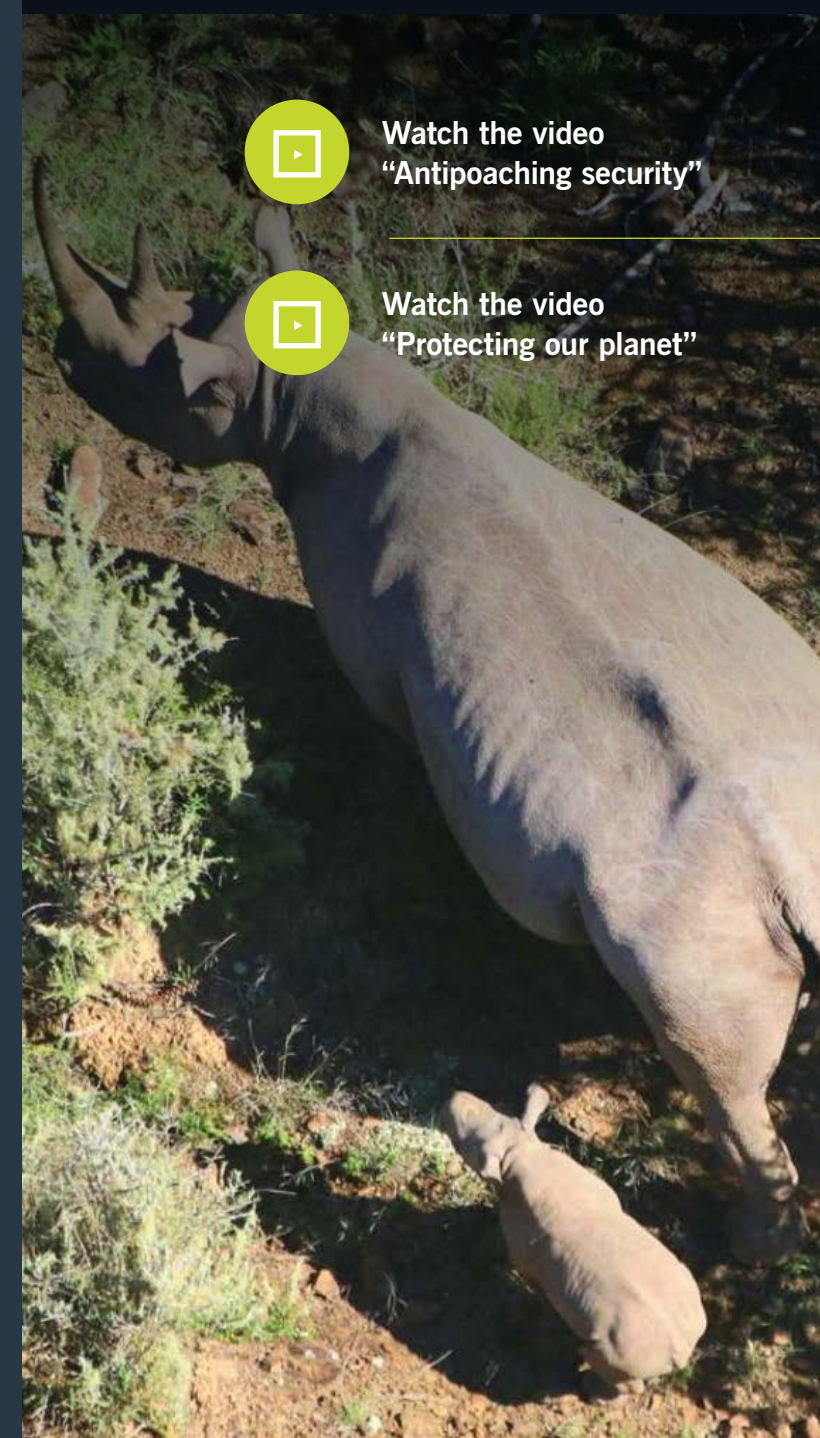
Rhino Bond



Watch the video
“Antipoaching security”



Watch the video
“Protecting our planet”





NATURAL RESOURCES

Rhino Bond





Natural resources

REPUBLIC OF SEYCHELLES BLUE BOND

ALIGNMENT WITH SDGS:



Mission and intended outcomes

- Part of a larger World Bank program known as SWIOFish3, designed to support a transition to sustainable fisheries in Seychelles.
- The largest portion (\$12 million) of the \$15 million in bond proceeds will go toward the Blue Investment Fund, a revolving loan fund for commercial projects with a specific focus on developing the country’s “blue economy” through diversification and sustainability activities that can generate a return.
 - Example: refitting vessels for longline tuna fishing, considered a more sustainable method than deep-sea trawling.

- The other \$3 million in proceeds will be used to fund expanded sustainable use of marine-protected areas (\$1.5 million) and to improve governance of priority fisheries (\$1.5 million).

Measurable impact

- By the end of 2020, 30% of the Seychelles Exclusive Economic Zone was designated sustainable-use protected areas, with SWIOFish3 and the blue bond funding research and development plans for sustainable fisheries in these areas
- Ongoing related projects and studies include capacity building for small-scale fishing operators, assessing employment needs and developing a Seychelles seafood brand, among other priorities

“

What really stands out about the Seychelles bond is not only the direct, measurable impact it delivers, but also that it can serve as a template for future deals, helping to develop the fledgling blue bond market.”

*Stephen M. Liberatore, CFA,
Head of ESG/Impact – Global Fixed Income*

Originally appeared in 2021 Global fixed income impact report



NATURAL RESOURCES

Republic of Seychelles Blue Bond

Issued by the Republic of Seychelles, an island nation off the coast of East Africa, this debt offering was the world's first sovereign “blue” bond — a pioneering financial instrument designed to support sustainable fisheries and other marine projects in countries whose economies depend primarily on the health of the ocean.

This issuance, a unique collaboration between the Seychelles government, the World Bank and the private sector, raised \$15 million. It is supported by a \$5 million guarantee from the World Bank and a further \$5 million from the Global Environment Facility (GEF) that can be used only to cover the bond's coupon payments.

“The World Bank contacted us early in the development process, and we worked closely with a team of experts to structure the transaction,” explains Stephen M. Liberatore, CFA, portfolio manager and head of ESG/impact – Nuveen global fixed income. “The bond's relative valuation, along with its partial backing from the World Bank and the GEF, make it an attractive investment opportunity. At the same time, its direct and measurable impact is exactly what we look for in our proprietary impact framework.”

SWIOFish3, which is implementing the projects funded by the bond, provides both a quarterly report, which benchmarks progress against measurable outcomes and deadlines for the entire program, and an annual report focused on blue bond-supported impact. The most recent report documented the funding of four large and eight small grants to date.

Additionally, the SWIOFish3 project manager meets annually with Nuveen to review the overall program and the progress of blue bond-funded activities in particular.

“What really stands out about the Seychelles bond is not only the direct, measurable impact it delivers, but also that it can serve as a template for future deals, helping to develop the fledgling blue bond market,” explains Stephen Liberatore, who in addition to his role at Nuveen serves on the blue economy investor advisory group of the UN's Joint Sustainable Development Goals Fund. “Whether the guarantor is the World Bank, the IFC, the Asian Development Bank or some other entity, there are many stakeholders with whom governments and investors can partner to structure, finance and issue blue bonds.”

Nuveen's approach demonstrates to both potential issuers and large institutional investors — who otherwise might be hesitant to participate in smaller, less-liquid, non-index-eligible issues — that accessing public fixed income markets can be a powerful way to finance these innovative impact opportunities, he adds.

For more information, please visit us at nuveen.com

Endnotes

1 Century Housing Corporation, <https://century.org>

2 Community Development Financial Institutions Fund, <https://www.cdfifund.gov>

3 Proceeds used for climate-aligned projects and initiatives but issued without designation mentioned in offering documents or deals too small to make second-party opinions economically viable.

4 <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.

5 <https://www.census.gov/quickfacts/fact/table/pharrcitytexas/PST045222>

6 <https://www.digitalinclusion.org/worst-connected-cities-2019/>

7 <https://www.calix.com/press-release/2023/june/from-worst-to-best-in-18-months-city-of-pharr-leverages-calix-platform.html>

8 <https://www.fcc.gov/consumers/guides/broadband-speed-guide>

9 <https://riograndeguardian.com/pharrs-blazing-speed-broadband-is-being-expanded-into-san-juan-and-alamo/>

10 All county populations sourced from <https://www.census.gov/quickfacts/fact/table/US/PST045222>

11 Impact Investment Exchange, Women’s Livelihood Bond 2 (“WLB 2”) Summary Semi-Annual Impact Report Q1 – Q2 2020

12 Mercom India – Clean Energy News and Insights, March 2020

The selected investment examples, case studies and/or transaction summaries presented or referred to herein may not be representative of all transactions of a given type or of investments generally and are intended to be illustrative of the types of investments that have been made or may be made by the investment strategies and does not constitute investment advice or recommendation of past investments. The case study presented herein reflects an objective, non-performance-based standard of showing examples of investments and it should not be assumed that the investment team will make equally successful or comparable investments in the future. Moreover, actual investments will be made under different market conditions from those investments presented or referenced and may differ substantially from the investments presented herein as a result of various factors. Nothing set out in these materials is or shall be relied upon as a promise or representation as to the past or future. This material, along with any views and opinions expressed within, are presented for informational and educational purposes only as of the date of production/writing and may change without notice at any time based on numerous factors, such as changing market, economic or other conditions, legal and regulatory developments, additional risks and uncertainties and may not come to pass. There is no representation or warranty (express or implied) as to the current accuracy, reliability or completeness of, nor liability for, decisions based on such information, and it should not be relied on as such.

The Nuveen Responsible Investing team developed this report to provide an indication of the aggregate social and environmental impact created by the projects and organizations financed in part by the Strategy. Given the difficulty of attributing impact in proportion to the size of the Strategy’s share of each bond issuance (which ranges from 0.015% to 100%), the data reflect total impact generated by the project, program, or issuer rather than the Strategy’s share alone.

The report represents bonds that are classified under the Strategy’s proprietary impact framework and for which relevant data are available. All impact data are sourced from publicly available issuer disclosures at the bond or project level when possible, or the program or issuer level if not. Metrics selected for each impact theme reflect the information most commonly reported by issuers and each metric includes data from between 2 and 46 issuers. In cases where the Strategy has a large position in a certain issuer, we prioritize selecting metrics reported by that issuer. The data shown is for all global fixed income accounts managed with an explicit impact objective, is provided for informational purposes only and may not reflect current positioning of the portfolio. The report represents bonds that are classified under the Strategy’s proprietary impact

framework and for which relevant data are available. All impact data are sourced from publicly available issuer disclosures at the bond or project level when possible, or the program or issuer level if not.

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13 Kissimmee, Florida Population and Median Household Income https://data.census.gov/profile/ Kissimmee_ city_ Florida?g=160XX00US1236950

14 CoStar Analytics. As of November 2024

15 <https://news.mo.co.uk/news/motability-operations-new-pricing-reflects-industry-challenges-but-remains-48-percent-cheaper-than-alternatives>

16 City of Detroit Neighborhood Improvement Plan: <https://www.cityofdetroitbonds.com/detroit-mi-investor-relations-mi/about/esg-program/1383>

17 Proposition HHH Resolution: <http://clkrep.lacity.org/election/final%20homelessness%20hhh%20for%20 web.pdf>

18 University of California at San Francisco Statewide Study of Homelessness Survey 2023: https:// homelessness.ucsf.edu/sites/default/files/2023-06/CASPEH_Report_62023.pdf Within the study, households paying more than 30% of their income in rent are considered rent burdened; households paying more than 50% of their household income in rent are considered severely rent burdened.

19 APICORP Green Bond Report, October 2023: https://www.apicorp.org/wp-content/uploads/APICORP_ GreenBond_Report_2023_PT_Oct23-V8_Final.pdf

20 Nuveen, Tideway Sustainable Finance Framework 2025, Bloomberg (as of October 2025)

21 Nuveen, World Bank Group

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23 Bloomberg

24 Credit Suisse press release, 4 May 2023 (Credit Suisse International Announces the Final Results of its Offer to Purchase for Cash Notes of the Republic of Ecuador)

25 Inter-American Development Bank, 09 May 2023. <https://www.iadb.org/en/news/ecuador-completes-worlds-largest-debt-nature-conversion-idb-and-dfc-support>

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