°CICERO Shades of Green

Fannie Mae
Multifamily Green Bond Second Opinion

August 25, 2020

The Federal National Mortgage Association (Fannie Mae) is the largest U.S. government-sponsored enterprise (GSE), chartered in 1938 by the United States Congress. Fannie Mae's mission is to support liquidity and stability in the secondary U.S. residential mortgage market, and to help underserved markets, such as affordable housing for low- and moderate-income families. It provides market liquidity by purchasing qualifying mortgages from lenders, which it can bundle into Mortgage Backed Securities (MBS) – and sells to investors with guarantees; it does not lend directly to consumers. According to the issuer most of the company's Multifamily MBS are single-asset securities.

Fannie Mae's Multifamily Green MBS program is used to finance green mortgage loans backed by multifamily properties awarded green building certifications or audited efficiency improvements. Building certifications are grouped and receive preferential terms based on stringency of the certification program, but do not guarantee specific levels of GHG reductions. Eligible energy and water efficiency measures must reduce whole property energy and water consumption combined by at least 30%, inclusive of a minimum of 15% reduction in energy consumption.

By introducing the first pricing break for green building certifications or performance in the U.S. multifamily rental property market, Fannie Mae has encouraged and raised awareness of green buildings and water and energy efficiency improvement initiatives. The framework establishes a strong mechanism for incentivizing green mortgages and efficiency improvements. However, the current requirements fall short of fully aligning the US housing stock towards a low-carbon future. In addition, Fannie Mae's Multifamily Green Bond Framework allows for replacement of existing fossil equipment with more efficient models and does not consider fossil fuel-based heating, construction phase emissions, nor transportation accessibility of the properties. The issuer is encouraged to target and manage absolute GHG emissions, and to continue to improve analysis of flood risk and other climate risks to the properties.

Based on the overall assessment of the activities that will be financed and the governance of the framework, Fannie Mae Multifamily Green Bond Framework receives a **CICERO Light Green** shading and a governance score of **Good**.

SHADES OF GREEN

Based on our review, we rate the Fannie Mae's Multifamily Green Bond Framework **CICERO Light Green.**

Included in the overall shading is an assessment of the governance structure of the Multifamily Green Bond Framework. CICERO Shades of Green finds the governance procedures in Fannie Mae's framework to be **Good**.

GREEN BOND PRINCIPLES

Based on this review, this Framework is found in alignment with the principles.

°CICERO Light Green

Contents

1 Terms and methodology

This note provides CICERO Shades of Green’s (CICERO Green) second opinion of the client’s framework dated July 22, 2020**.** This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client’s policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

Expressing concerns with ‘shades of green’

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

CICERO Shades of Green	Examples
Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.	Wind energy projects with a strong governance structure that integrates environmental concerns
Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.	Bridging technologies such as plug-in hybrid buses
Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.	Efficiency investments for fossil fuel technologies where clean alternatives are not available
Brown is allocated to projects and solutions that are in opposition to the long-term vision of a low carbon and climate resilient future.	New infrastructure for coal

Sound governance and transparency processes facilitate delivery of the client’s climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client’s governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

2 Brief description of Fannie Mae's Multifamily Green Bond Framework and related policies

The Federal National Mortgage Association (Fannie Mae) is the largest U.S. government-sponsored enterprise (GSE), chartered in 1938 by the United States Congress. Fannie Mae's mission is to support liquidity and stability in the secondary U.S. residential mortgage market, and to help underserved markets, such as affordable housing for low- and moderate-income families. It provides market liquidity by purchasing qualifying mortgages from lenders, which it can bundle into securitized bonds – or Mortgage Backed Securities (MBS) – and sells to investors with guarantees; it does not lend directly to consumers. According to the issuer most of the company's Multifamily MBS are single-asset securities.

Fannie Mae serves the housing market through the Single Family (1-4 residential units) and the Multifamily (5+ residential units) Mortgage Businesses. Through the single-family and multifamily business segments, Fannie Mae provided over $650 billion in liquidity to the mortgage market in 2019, which enabled the financing of approximately three million home purchases, refinancing or rental units. The Fannie Mae Multifamily Mortgage Business has a Delegated Underwriting and Servicing Program (DUS®) that uses a national network of DUS lenders to finance apartment buildings with rental units, manufactured housing campuses and cooperatives. According to the issuer, Fannie Mae Multifamily only provides mortgage loans for owners to refinance multifamily properties that are already built or to acquire multifamily properties that are already built, and supplemental loans for existing mortgage holders. Fannie Mae does not provide mortgage loans to developers to construct new properties.

Environmental Strategies and Policies

Fannie Mae has had its Green Financing Advisory Council in place since 2010, originally called the Green Rental Housing Task Force. The Advisory Council meets at least once a year in-person to discuss market transformation goals and the strategy of the Green Financing Business. The Advisory Council's invited members represent key stakeholders in the multifamily and sustainability industries including US federal agencies, Green Building Certification-issuing organizations, energy efficiency experts, utilities, non-profit entities engaged in energy efficiency policy, multifamily lenders, and property owners. An ESG team was established in 2019 focused on developing Fannie Mae's strategy and goals, led by a Vice President at the institution. In 2020, Fannie Mae launched a Climate Risk team, also led by a Vice President, tasked with risk management, identification, mitigation and awareness of potential climate impacts on all aspects of the business.

The Fannie Mae Multifamily Mortgage Business launched its Multifamily Green Financing Business in 2010. Through this Business, Fannie Mae seeks to create more affordable quality housing in the United States, reduce the real estate sector's impact on the environment, and create financial value by offering financing solutions for energy and water efficiency investments, green building certification, and renewable energy to apartment buildings and cooperatives.

Fannie Mae launched its first Green Mortgage Loan product in 2011 and issued its first Green MBS in 2012 and established a Green Bond Framework in 2018. The company is the largest green bond issuer globally by issued volume. Since 2012, Fannie Mae has issued a total of USD 75 billion worth of green bonds and USD 22.8 billion in 2019. Fannie Mae reported a projected GHG emissions savings through its green bonds of 528,000 metric tons in the years 2012-2019. With this 2020 update of its framework, Fannie Mae has raised its eligibility standards for its Green Rewards to include mandatory energy efficiency improvements. In addition, a new category for building certifications regarding zero emission buildings has been established. Fannie Mae has also established a Fannie Mae Green Measurement and Verification Service to verify Green Rewards Borrowers improvements and enhance data collection. The service provides customized, hands-on assistance to all Borrowers with a Green Mortgage Loan to meet their reporting obligations. A skilled energy analyst supports each Borrower with whole property energy and water consumption reporting (Measurement). After the energy and water efficiency measures are implemented for Green Rewards loans, energy audit specialists inspect properties to ensure that the efficiency measures were installed properly (Verification).

Use of proceeds

According to the issuer, proceeds from each Fannie Mae Multifamily Green MBS are used to finance Green Mortgage Loans, which have originated and closed prior to the bond being issued. A Green MBS is a Green Bond, where the bond is secured by an existing piece of real estate collateral. Fannie Mae's loan products include refinancing or acquisition for existing properties which have been awarded a green building certification and for renovations, retrofits, and repairs that reduce whole property energy and water use combined by at least 30% of which a minimum of 15% must be attributable to savings in energy consumption. The baseline for each property is the buildings' prior 12-month energy or water use, and is calculated using all energy and water inputs and outputs, including natural gas, fuel oil, electricity, and energy generation from renewable energy.[1] In 2018 and 2019 less than 3% of proceeds were allocated to Fannie Mae's Green Building Category while the remainder of $18.9 billion and 22.2 billion, respectively, were allocated to Fannie Mae's Green Rewards Program. The Green Building Certification loans are expected to be a growing percentage in 2020 and 2021.

Eligible green mortgage products fall into two categories: Green Building Certification and Green Rewards. Building certifications that are recognized by Fannie Mae are described below.

To be eligible for a Green Building Certification (GBC) loan, property must have been awarded a certification recognized by Fannie Mae. As of the date of this Framework, there are 35 different certifications from 12 different issuing organizations that are recognized. Certifications are re-evaluated annually to determine if new certifications should be added, or if certifications should be removed due to failure to meet the criteria. Fannie Mae has engaged an independent consulting firm to conduct this review and create groupings of the certifications based on the prerequisites of each certification:

- Towards Zero: Certifications that require a greater than 50% reduction of energy or water use from the national baseline.
- Group 1: 20% or greater reduction of energy use from the national baseline, plus ventilation requirements for new buildings.
- Group 2: Energy use reduction greater than 15% from the national baseline.
- Group 3: Energy use reduction greater than 10% from the national baseline.

The Towards Zero group was added in 2019 as the greenest group, requiring a measurable reduction of at least 50% in energy usage from the national baseline, equivalent ASHRAE 90.1-2004 national energy standard for buildings and/or the national median EUI for multifamily buildings. The delineation and requirements for each group may become more stringent from year to year as the Green Building Certification market continues to develop and mature. All building certifications currently recognized by Fannie Mae are listed in Table 1.

[1] Fannie Mae requires actual owner use data however actual tenant data cannot always be obtained as utilities are often direct metered to the tenants. When actual whole-property data cannot be obtained, the tenant utility data may be modeled.

Table 1: Eligible Certifications

Group	Group Definition	Green Building Certification
Towards Zero	Certifications that require a greater than 50% reduction of energy or water use from the national baseline[2].	• International Living Future Institute, Living Building Challenge • International Living Future Institute, Zero Energy Certification • Passive House Institute (PHI), Certified Passive House • Passive House Institute (PHI), EnerPHit Certified Retrofit • Passive House Institute US (PHIUS), PHIUS+ Certified • USGBC, LEED Zero Energy
Group 1	20% or greater reduction of energy use from the national baseline, plus ventilation requirements for new buildings.	• Build it Green, GreenPoint Rated New Home Multifamily • Green Building Initiative, Green Globes Multifamily Performance Plus for New Construction • Green Building Initiative, Green Globes Multifamily Performance Plus for Existing Buildings • Enterprise Community Partners, Enterprise Green Community Criteria • U.S. Department of Energy, Zero Energy Ready Home • U.S. Environmental Protection Agency, ENERGY STAR Certified Homes • USGBC, LEED BD+C: Homes v3 • USGBC, LEED BD+C: Homes v4 • USGBC, LEED O+M: Existing Buildings v4 • USGBC, LEED O+M: Existing Buildings v4.1 • USGBC, LEED BD+C: New Construction v4.1
Group 2	Energy use reduction greater than 15% from the national baseline.	• Build It Green, GreenPoint Rated Whole Building Existing Multifamily • Home Innovation Research Labs, National Green Building Standard (NGBS) Green Multifamily Building Certification • International Living Future Institute, Zero Carbon • Southface, EarthCraft • U.S. Environmental Protection Agency, ENERGY STAR Multifamily High Rise • U.S. Environmental Protection Agency, ENERGY STAR Certified New Construction • U.S. Environmental Protection Agency, Existing Multifamily Buildings • USGBC, LEED BD+C: Multifamily Midrise v3 • USGBC, LEED O+M: Existing Buildings v3 • Viridiant, EarthCraft
Group 3	Energy use reduction greater than 10% from the national baseline.	• Green Building Initiative, Green Globes Multifamily for New Construction • Green Building Initiative, Green Globes Multifamily for Existing Buildings • Home Innovation Research Labs, National Green Building Standard (NGBS) Green Home Remodeling Project Certification • USGBC, LEED BD+C: Multifamily Midrise v4

[2] All certifications in the Toward Zero group require at least a 50% reduction in energy use from the national baseline. The only certification that would also have a significant (greater than 50%) water reduction is Living Building Challenge, and in that case the property would be net-zero energy and water.

	• USGBC, LEED BD+C: New Construction v3 • USGBC, LEED BD+C: New Construction v4 • USGBC, LEED Zero Carbon

Selection

The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the governance process.

Loans are considered eligible if they conform to the Multifamily Selling and Servicing Guide, Fannie Mae forms and loan agreements that govern Green Mortgage Loan eligibility at the time of the delivery.

In order to secure a Green Building Certification Mortgage loan, the borrower must provide the DUS Lender a copy of the property's certification. The certification must be one of the certifications recognized by Fannie Mae, must be unexpired and must have been awarded within the last five years prior to loan closing. At the time of loan closing, the borrower must commit to report to Fannie Mae annually the property's energy and water performance including the ENERGY STAR Score, Source Energy Use Intensity (EUI), EPA Water Score and Water Use Intensity. The Lender must provide the certification to Fannie Mae at the time of loan delivery, which occurs after locking the interest rate and closing the loan with the borrower. DUS lenders identify, screen and select properties and originate the Green Mortgage Loans that are eligible for Green MBS; these lenders go through extensive training on energy and water efficiency and energy generation to ensure a baseline understanding of environmental implications of real estate properties. Lenders have in-house Subject Matter Experts (SMEs) that attend Fannie Mae's regular training sessions and meetings every two weeks to learn and discuss technical matters related to energy, water and environmental issues. The resulting loans are reviewed and approved by Chief Underwriters.

In order to secure a Green Rewards Mortgage Loan requires a series of steps requiring the DUS lender to complete flood risk report, per DUS requirements, and a High-Performance Building Report that meets ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Level II and Fannie Mae standards, using a qualified independent High Performance Building (HPB) consultant. The report informs the borrower of all the opportunities at the property to save energy and water, and the list from which the borrower must select improvements that project to save 30% or more on energy and water consumption or with a minimum of 15% reduction in energy consumption. At the time of loan closing, the borrower must commit to report to Fannie Mae annually the property's energy and water performance. The lender must submit the HPB Report to Fannie Mae at the time of loan delivery, which occurs after locking the rate and closing the loan with the borrower.

Failure to meet any of the described conditions will result in the inability of the MBS to obtain a "green" label, and of the borrower to access the financial incentives available to loans in the Green Financing Business.

Fannie Mae's Green Financing Business strategy, loan products and portfolio, is led by a Director and consists of a dedicated team of finance and sustainability experts. The Director's and team members' expertise includes solar financing, energy and water efficiency technologies, energy audit standards, energy benchmarking protocols to green building certifications. The Director reports on the performance of the Green Financing Business to the executive leadership of the Multifamily Business.

There are two audit processes and two audited entities: The Lender and the HPB ("High Performance Building") Consultants. First, the Fannie Mae Multifamily Loan Surveillance team conducts reviews focused on the Lenders' compliance with the Fannie Mae Guide and related policies and processes and, second, the Green Financing Business team conducts expanded audits. Audits are conducted on a sampling of all Green Mortgage Loans and include analysis of both Lender and HPB Consultant activities.

For Lender audits, for the first three months after a lender has been delegated approval of green loans, 20% of each lender's delivered Green Mortgage loans are reviewed each month. Starting in month four, 10% of each Lender's Green Mortgage loans will be reviewed each month. If a loan is found to have significant issues that impact its eligibility for green pricing and disclosure as a Green MBS, remedies may include requiring repurchase of the loan by the Lender. In the case of a lack of certification results in a loss of eligibility and the loan is made available for repurchase.

For HPB consultants: for the first three months after a Consultant is pre-qualified, a minimum of three reports by each consultant that were approved by Lenders will be reviewed each month. Starting in month four, a minimum of two reports by each approved consultant will be reviewed. If multiple HPB Reports are found to have significant issues, remedies may include loss of a pre-qualified HPB Consultant's status as pre-qualified, or exclusion from pool of eligible consultants.

Findings from Fannie Mae's review of Green Loans are incorporated into Fannie Mae's bi-weekly Lender and Consultant update calls to raise the knowledge and performance of all Green mortgage loan stakeholder

Management of proceeds

CICERO Green finds the management of proceeds of Fannie Mae to be in accordance with the Green Bond Principles. Fannie Mae uses an escrow account to track and manage loan proceeds; these accounts are overseen by Fannie Mae's lender partners. When a Green Rewards loan closes, 125% of the anticipated costs of the selected improvements are put into an escrow account and documented an exhibit to the Loan Agreement[3]. The Green Rewards program requires that borrowers implement their energy and water improvements no later than 12 months from loan closing[4]. The lender releases the funds from escrow back to the multifamily owner/borrower only when the owner provides documentation, such as invoices, confirming that the improvements have been completed. The Lender conducts a site visit of the property to evaluate its condition on a periodic basis. Fannie Mae requires confirmation from the lenders that the green improvements were made to the borrower's property by the deadline. In addition, the Fannie Mae Green Measurement and Verification Service conducts an on-site inspection of the Green Rewards improvements to ensure that the improvements were installed correctly.

The network of Fannie Mae's lender partners that oversee the escrow accounts for the Green Rewards borrowers hold a license to conduct Fannie Mae business and are risk-sharing partners in the loans originated. This relationship ensures the responsible management of the energy and water improvements-related proceeds in the escrow accounts.

Fannie Mae will not have unallocated proceeds.

Reporting

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green finance investments are also vital to build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

As part of its commitment to transparency and reporting, Fannie Mae maintains a Green Financing website where investors can find background material on the Green Financing Business (www.fanniemae.com/green). Fannie

[3] Some affordable housing properties that are leveraging Low Income Housing Tax Credits (LIHTC) may fund escrows in stages; historically, less than 1% of Green Rewards loans have been backed by LIHTC properties.

[4] In select circumstances with an unusually large property or extensive scope of work, Fannie Mae may agree to extend the 12-month time frame permitted to complete the efficiency improvements. For example, due to the COVID-19 pandemic, Fannie Mae is temporarily offering a 180-day extension to enable Borrowers to minimize risk to residents during installation of the efficiency improvements.

Mae already maintained a website on Green Financing since its last green bond framework was established and will continue to do so in the future. In addition, Fannie Mae maintains a file listing all of the MBS and GeMS products backed by Fannie Mae Green Financing products by Pool Number and CUSIP Identifier (multifamily.fanniemae.com/financing-options/specialty-financing/green-financing/green-bonds); this file is updated on a monthly basis and contains a breakdown of investments.

Since the last green bond framework was published Fannie Mae has established a Green Measurement and Verification (M&V) Service measuring 5 key metrics (ENERGY STAR Score, Source Energy Use Intensity, EPA Water Score, Water Use Intensity, and Score Date) for each multifamily security on an ongoing-basis starting 18-24 months after the acquisition of the mortgage loan by Fannie Mae. Fannie Mae publishes data both at-issuance and ongoing for its MBS through a web-based system called DUS Disclose® (https://mfdusdisclose.fanniemae.com/). GHG emission reductions can also be calculated using the historical and projected energy and water consumption data from the High Performance Building Report. In addition, property financial statements, security and loan information as well as active and terminated property information in a downloadable format.

Having published its first retrospective impact report for 2012-2018 in 2019, Fannie Mae publishes an annual investor report describing the financing of Green eligible assets for the preceding year. The details of this report include a) a list of the different categories of Green eligible assets financed and the percentage distribution to each such category of Green eligible assets, b) a description of a selection of Green eligible assets, as examples of the eligible assets financed in that year and c) a summary of FNMA's Green Bond development and green financing activities in general. Fannie Mae does not report on the breakdown of Green MBS by GBC level due to current data system limitations but does disclose the type of certification the property received allowing for a calculation of property shares in each certification level category. In 2019 approximately 70% of the properties had a Group 1 certification and approximately 30% had a Group 2 certification, with no Group 3 or Towards Zero certifications.

3 Assessment of Fannie Mae's Multifamily Green Bond Framework and policies

The framework and procedures for Fannie Mae's green bond investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where Fannie Mae should be aware of potential macro-level impacts of investment projects.

Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in Fannie Mae's Multifamily Green Bond Framework, we rate the framework **CICERO Light Green.**

Eligible projects under the Fannie Mae's Multifamily Green Bond Framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed and that the selection process should be "well defined".

Category	Eligible project types	Green Shading and some concerns
Green Buildings °C	**Green building certifications** Properties that have one of the 35 different certifications from 12 different issuing organizations (see Table 1)	**Light Green** ✓ Voluntary environmental certifications such as LEED and EarthCraft or equivalents provide varying levels of measurement of environmental footprints for a building. However, they do not guarantee a substantial reduction in GHG emissions. ✓ There is no distinction between levels regarding eligibility criteria in this category. There can be a wide range of requirements for energy efficiency and other aspects depending on the level of certification. However, it is a strength that Fannie Mae now requires buildings in the lowest group 3 to be at least 10% better than the national baseline. ✓ Approximately 70% of properties were Group 1 certification in 2019, and 30% Group 2. In 2020 a small percentage is

		expected in Group 3 and Towards Zero certification categories, which will receive greater preferential rates. ✓ In a low-carbon 2050 perspective, the energy performance of buildings is expected to be improved, with passive and energy-contributing housing technologies becoming more mainstream and the energy performance of existing buildings greatly improved through refurbishments. It is a strength that passive house certifications are included.
	Green Rewards To be eligible for a Green Rewards Mortgage Loan, the property owner must commit to install energy and water efficiency measures that are projected to reduce whole property energy and water consumption combined by at least 30%, inclusive of a minimum of 15% reduction in energy consumption. Energy consumption reduction requirements may be met through a combination of renewable energy generation and energy efficiency. Eligible efficiency measures include: • Energy efficiency heating, ventilation and air conditioning (HVAC) systems; • Energy efficient lighting; • Water efficient fixtures including low-flow toilets, faucets; • Energy efficient appliances such as ENERGY STAR® refrigerators; and • Solar photovoltaic systems.	**Light to Medium Green** ✓ These measures are important for the climate and the environment and constitute a significant improvement compared to Fannie Mae's previous green bond framework. However, with a minimum energy efficiency improvement requirement of 15%, and an expected balance across energy and water efficiency loans, this falls short compared to the requirements to transition to a low-carbon future. Efficiency of building envelopes need to improve by 30% by 2025 to keep pace with increased building size and energy demand – in addition to improvements in lighting and appliances and increased renewable heat sources[5]. The impact of this category on reduced GHG emissions is dependent on the extent the measures are energy efficiency focused, and the property baseline (consumption over the previous 12 months). Water efficiency measures can contribute to climate adaptation depending on the location. ✓ The list of eligible efficiency measures excludes efficiency improvements in existing boilers and hot water heaters and replacements but does not prohibit replacing inefficient fossil fuel elements with more efficient ones. Properties with fossil fuel heating are not excluded.

Table 2. Eligible project categories

[5] https://www.iea.org/topics/tracking-clean-energy-progress

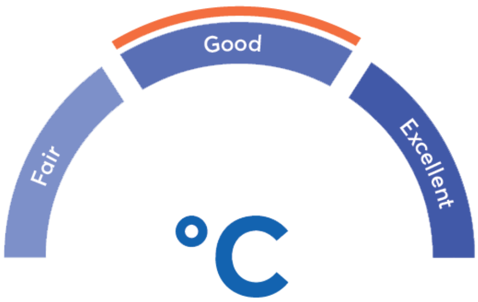
Governance Assessment

Four aspects are studied when assessing the Fannie Mae's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Fannie Mae has well-established governance and risk management procedures that ensure frequent and comprehensive audits of consultants, reports, and property performance data. In addition, Fannie Mae has updated its green bond framework only two years after its first framework and is the largest green bond issuer in the world. Audits are results-based and include site visits for verification. If buildings or consultants fail to meet the criteria, there is a mechanism to remove them from eligibility. Fannie Mae does not currently issue a sustainability report. While Fannie Mae indicated they would issue a sustainability report in our assessment in 2018, Fannie Mae still has not put forward organizational or program-level targets for GHG reductions and has not issued a sustainability report including projected GHG emissions to be reduced by its lending portfolio. However, Fannie Mae has established an ESG team (as well as a climate risk teams) to develop an institution-wide strategy, which is led at the executive level. Projected GHG reductions at the portfolio level can be found in the Green Bond Impact Report, and projected GHG emissions reductions at the Green Bond level can be found in the Fannie Mae Environmental Impact per CUSIP excel file at fanniemae.com/greenimpact. Fannie Mae relies on external, established green building certifications with comprehensive auditing procedures, providing confidence in the issuer's ability to achieve the green ambitions of the framework.

The issuer has integrated transparent reporting procedures, with platforms that are updated annually and detailed information that is publicly available. The issuer requires energy and water use data from all financed properties, which supports highly transparent and performance-based data availability. Reported data is available for each loan. Aggregated information on total efficiency improvements and GHG emissions for MBS products would further improve the usefulness of data for impact reporting.

The overall assessment of Fannie Mae's governance structure and processes gives it a rating of **Good**.



Strengths

By introducing the first pricing break for green building certifications or performance in the U.S. multifamily rental property market, Fannie Mae has encouraged and raised awareness of green buildings and water and energy efficiency improvement initiatives. Fannie Mae offers a reduced interest rate on Green mortgage loans. The program is now 10 years old and Fannie Mae continues to assess and refine strategies to improve market-wide adoption of efficiency technologies and incrementally reduce environmental impact among the poorest efficiency performers. The result is expected to raise the floor on energy and water performance of properties in this market. This is also reflected in the raised ambition under this framework only two years after the previous framework was established.

It is a strength that Fannie Mae has updated its framework with a Green Measurement and Verification (M&V) Service. With the help of this system, 5 key metrics are measured (ENERGY STAR Score, Source Energy Use Intensity, EPA Water Score, Water Use Intensity, and Score Date) and reported to investors. In addition, it constitutes a strength that Fannie Mae is engaging a third-party energy audit party to verify efficiency improvement measure installations on-site. This verification site visit occurs at least one month after the property's deadline to complete improvements.

Fannie Mae has raised the ambition of its certification schemes. In order to be eligible, the energy use reduction has to be greater than 10% from the national baseline. In addition, the certification groups include a Towards Zero group with passive housing and zero energy certifications. The Towards Zero group is not currently in the portfolio but is expected to grow marginally this year, and Fannie Mae intends to incentivize Towards Zero certifications via a greater pricing benefit.

Furthermore, Fannie Mae has raised its eligibility standards for its Green Rewards including mandatory energy efficiency improvements. Considering that more than 97% of all proceeds in 2018 and 2019 went to the Green Rewards program, mandatory energy efficiency requirements constitute a clear strength. In addition, building certifications have been adjusted and now also include zero emission building group been established, which reflects the necessity of moving toward decarbonized solutions in the building sector.

The list of eligible Green Building Certifications undergoes robust analysis in addition to internal annual review and revision by the Green Financing Business team, which can include adding or removing certifications from eligibility. The issuer engages a third party industry expert in energy and water engineering to review the green building certifications available on the market on an annual basis; the certifications are evaluated by requirements and implied environmental impact for each available score. In an effort to recognize the certifications that will have greater environmental impact, the certifications were sorted into four groups. These levels of environmental impact are tied to potential preferential interest rates, which vary according to market conditions but are scaled to being more preferential for Group 1 and Towards Zero certifications. According to the issuer, Fannie Mae will offer organizations issuing the GBCs an opportunity to sign an agreement that will cement a partnership between the GBC organization, and multiple organizations have voluntarily raised their standards to secure a higher Group designation for their program. Because of Fannie Mae's considerable presence in the market, this applied pressure and commitment to collaborate can have a significant impact on future standards and performance.

To inform eligibility screening, the issuer invests in in-house technical expertise and tools. Fannie Mae's broad network of DUS Lenders go through continual training on energy and water efficiency, and energy generation which ensures a strong baseline of technical expertise in environmental impact of real estate properties for staff reviewing initial green loan applications. DUS Lenders' Subject Matter Experts (SMEs) attend training sessions and meetings every two weeks.

Weaknesses

No significant weaknesses perceived.

Pitfalls

Voluntary green building certifications do not guarantee reduced emissions or other environmental benefits. This is countered by Fannie Mae's raised ambition on building certifications that require an energy use reduction has to be greater than 10% from the national baseline. Fannie Mae analyzes the significant degree of variation in requirements from the certification programs and excludes voluntary green building certifications that do not guarantee sufficiently reduced emissions or other environmental benefits, but does not distinguish between scores within a specific Green Building Certification program. This results in the lowest level of eligible certifications forming the basis for eligibility in the project category. Fannie Mae conducts extensive analysis in considering levels of eligible certifications and offers more favorable pricing for higher certification groups. However, the resulting emission reductions from the varying levels and scores within the certification programs can vary greatly. Further, GHG emissions of the buildings and the related transportation and supply chain emissions are not explicitly targeted or reported on by Fannie Mae. The issuer is encouraged to consider GHG emission consideration for transparency on, and management of, climate impact.

Efficiency improvements to the existing housing stock (with an average age of over 40 years for multifamily housing in the US) is an important part of achieving a low-carbon future, but absolute GHG emissions are not explicitly targeted. For Green Rewards, energy and water efficiency measures are assessed using a baseline of the past performance of the specific property (over the previous 12 months). Older properties could be starting from a very inefficient baseline, highlighting the importance of increasing the target efficiency improvements over time to move the existing housing stock towards a lower carbon footprint. Furthermore, the transportation connectivity and the construction phase emissions are not explicitly considered. Thus, the issuer is encouraged to consider GHG targets and comparisons with sector and regional averages to support explicit management of climate impacts.

Direct investments in efficiency improvements of existing fossil fuel equipment are excluded with the update of Fannie Mae's framework, however it is possible to replace existing fossil equipment with newer more efficient fossil-based equipment. In addition, while Fannie Mae has raised the ambition regarding required energy efficiency for certified buildings, some of the buildings obtaining certification might include fossil fuel elements, either via direct heating or via the electricity mix. There is a potential rebound effect on efficiency improvements for buildings that are heated on fossil fuels. Across all loan products, regular property maintenance is required for the mortgage, including repairs related to life-and-safety such as parking lot repairs, which could have some unavoidable but limited exposure to fossil fuels. Overall, the Multifamily Green Bond Framework targets efficiency improvements in new and existing multifamily rental properties, which have the possibility to be significant. The net GHG impact over time should be considered in relation to possible lock-in via possible rebound effects that could result in increased energy use.

Fannie Mae also reviews exposure to flood risk, which is an effective first assessment of physical climate change risk but could still underestimate actual risk exposure. Fannie Mae's DUS Lenders are required to review properties' exposure to flood risk, which is based on the latest available flood zone maps according to the issuer. Fannie Mae's Flood Risk Working Group, established in 2019, is tasked with evaluating and improving the flood risk assessment procedures. Flood risk assessments of single-family and multifamily properties securing Fannie Mae loans in the continental U.S. and evaluation of climate modeling vendors are planned for the future. Stronger hurricanes in combination with sea level rise in coastal areas, in addition to increases in heavy precipitation and flooding in urban areas, have already been observed and are expected to increase in the US by mid-century across the range of climate scenarios explored in the IPCC 4th Assessment Report.[6,7] Meanwhile, increased water stress is expected in the southern region of the US. These physical impacts of climate change can cause property damage, discount property value, increase operational costs, and increase insurance premiums or change insurance coverage for coastal and urban communities in North America. We encourage Fannie Mae to expand its climate resilience screening regarding flooding as well as other physical climate risks such as, e.g., heat stress.

[6] Shades of Climate Risk, CICERO 2017 (https://cicero.oslo.no/en/climateriskreport)
[7] Flood Risk for Investors, CICERO 2018 (https://www.cicero.oslo.no/en/posts/news/half-of-flooding-damage-left-uninsured)

Appendix 1:
Referenced Documents List

Document Number	Document Name	Description
1	Fannie Mae Multifamily Green Bond Framework July 22, 2020	Fannie Mae's green bond framework with detailed descriptions of products and governance products for quality control, monitoring, reporting, and verification.
2	Fannie Mae Code of Conduct	Policy manual and guidance for staff conduct and business ethics
3	Fannie Mae 10k_2019	Public financial disclosure form with detailed information about performance and structure
4	Fannie Mae Multifamily Green Financing Overview Slides July 2020, July 2020	Presentation with a focus on Fannie Mae's Green Financing Business, products, and performance
5	Fannie Mae Form 4099.H Example - Woodpecker Creek	Example of high performing building report
6	Fannie Mae HPB Report Example - Woodpecker Creek	Example of high performing building report
7	Fannie Mae Annual Housing Activities Report 2019	Report reviewing organizational targets and performance in market share, portfolio make up, product development, and initiatives such as green financing and the Sustainable Communities Challenge.
8	Fannie Mae Eligible EWEMs, July 2020	List of allowable energy and water efficiency measures
9	02132020_GBC Impact and Grouping Methodology, February 2020	Memo on Impact and Grouping methodology
10	Fannie Mae Multifamily Green MBS Issuances	List of Green MBS issuances by type and year
11	Multifamily Green Bond Impact Report 2019	Fannie Mae's impact report for 2019
12	Excel file for all Green Bond issuances	Fannie Mae's Multifamily Green Bond issuances downloaded as an excel file from its website

Appendix 2:
About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD).