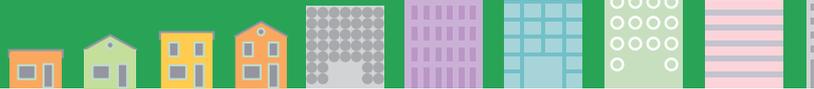




Financing low-carbon buildings in Mexico

November 2020



Mexico is a key player in reducing greenhouse gas emissions in Latin America and globally. The aim of this briefing is to provide a guide to the opportunities in the country to leverage green and sustainable bonds to finance low-carbon buildings. The sustainable financial market at a global level shows that energy, construction and transport were the top sectors financed with green bonds in 2019.¹ On the other hand, investment in adaptation and resilience also presents opportunities for Mexico.

Introduction to building sector

When the green and sustainable finance market started to grow in the early 2010s, questions around what is considered green or sustainable started to arise. Today, there are already classification systems in place to which market players can refer to. However, all economies exist in somewhat unique contexts, and, therefore, the exercise of identification of green, aligned with national environmental objectives and its relation to international classifications, should be done in each of the local markets.

The imperative:

The decarbonisation of the buildings sector is paramount. According to the UN 2019 *Global Status Report for Buildings and Construction*,² around 39% of total global energy-related CO₂ emissions come from buildings and construction. The projected world population growth combined with the need for greater energy access across the globe will dramatically increase the overall energy demand in the sector and its related carbon emissions. To overcome this, Mexico has assumed the unconditional international commitment under the nationally determined contributions (NDC) target to carry out mitigation actions that will result in the reduction of 22% of its greenhouse gas (GHG) emissions by 2030; and further up to 36% by 2030 achieved by encouraging the construction of sustainable buildings and promoting residential use of solar panels and heaters.³ Additionally, Mexico's 2012 General Climate Change Law established



a goal to reduce GHG emissions by 50% by 2050.⁴ Nevertheless, we need a greater ambition. According to the IPCC, emissions should decrease 45% by 2030, with respect to 2010 levels, and reach zero by 2050.⁵

The opportunity: In order to achieve these objectives, it is essential to channel investments towards energy efficiency and low-carbon building.



Building materials also provide substantial opportunities to reduce future energy demand and GHG emissions. Green and sustainable bonds and credits, for example, can be an important source for financing sustainable construction, thanks to its growth and acceptance around the world.

For instance, more than 50,000 new houses are projected to be built in Mexico City annually up until 2030, contributing to a USD18bn investment opportunity in green buildings.⁶ This would incentivize the green bond market, if these houses are built following green or sustainable standards.

The building sector in Mexico provides an important source of employment and a growth engine to the country, representing almost 7% of GDP in 2019, according to The National Institute of Statistics and Geography (INEGI).

On the other hand, according to the World Green Building Council, around 24 cities and states in Latin America are taking action to improve energy efficiency in buildings supported by the Building Efficiency Accelerator, a public-private collaboration focused on harnessing

building efficiency expertise to accelerate government implementation and policy. Two of these cities are located in Mexico (Mexico City and Merida) and some states are also part of the BEA program such as Nuevo León, Sonora, Jalisco, Quintana Roo, Campeche and Yucatán. This shows another opportunity of investment in green buildings: out of the region's total climate smart investment potential, 34% or USD901bn will go towards developing green buildings for Latin America's future sustainable cities.⁷

Size of the building green bond market:

Investments in energy efficiency in buildings have been rising on a stable trend for the last few years. In 2019, 59% of all energy efficiency investments went towards the buildings sector, according to the International Energy Agency (IEA's) *World Energy Investment 2020* report.



In the green bond market, issuers have allocated proceeds to fund low-carbon buildings, employing a variety of structures of labeled financial instruments as well as initiating a green securitization market. As of July 2020, USD227bn has been allocated to low-carbon buildings assets and projects globally.

About this briefing

This briefing provides an overview on how debt instruments have been used to finance investments in low-carbon buildings in Mexico and the opportunity for the future.

Green bond proceeds can be fully allocated to finance projects in a specific category, or they can be split across a number of categories. Usually, the issuers' intention with regard to proceeds allocation is set out in pre-issuance documents, such as the green bond framework, an external review or other documentation (e.g. bond prospectus).

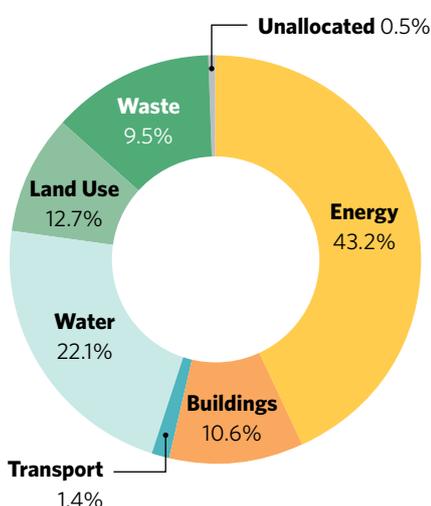
Sector overview

According to the National Institute of Ecology and Climate Change (INECC) in Mexico, emissions from the residential and commercial building sector are equivalent to 3.9% of GHGs, and black carbon emissions are equivalent to 24% of energy emissions. Therefore, addressing building is a priority. The overall impacts of low-carbon building can be perceived on the environment and human health throughout the life-cycle of the building, through the efficient use of energy, materials, water and other resources.



In addition, according to the Federal Mortgage Society in Mexico (SHF in Spanish), housing is one of the sectors characterized by the greatest potential for energy savings in the country.⁸ This is due to the wide range of options to make housing more efficient. These range from construction materials' life cycle, housing design, incorporation of ecotechnologies, to energy efficiency and energy consumption. Measures that can be taken to improve the building sector environmentally are cost-effective and offer net benefits, given that reduced electricity bills can pay for the upfront capital cost over time and can reduce operating costs. As an example, Sustentabilidad para México (SUMe) has explained that the existing building, Torre Mayor in Mexico City, reduced its operational costs and increased its value when it became LEED Gold certified in retrofit.⁹ This way, additional reductions could be achieved simply by implementing new technologies to existing structures.

Only 10.6% of green bond proceeds raised by Mexican issuers go to low-carbon buildings



Data as of 30 September 2020

To date, investors have used international certification standards as proxies in Mexico. However, the Climate Bonds low-carbon building criteria recognises that the global building sector is at different stages of development around the world and requires different benchmarks. CBI, for example, makes use of city-specific baselines to establish the trajectory for a low-carbon building for cities rather than relying on international proxies. This requires city specific data. In Mexico, significant efforts have been undertaken by the National Commission for Energy Efficiency (CONUEE in Spanish) to collect data from different buildings by city. This is the base for local building codes that can be applied to identify green buildings in the country. This requires constant updating of both public and private buildings.

Understanding which local or international certification schemes are aligned with the Paris Agreement is fundamental for identifying investment opportunities in low-carbon buildings.

Bonds financing low-carbon buildings in Mexico

Green or sustainable bonds with funding allocated to low-carbon buildings have continued to increase in the country where we have identified the following examples from Climate Bonds public data sources.¹⁰



On its part, Mexico City's government has issued two green bonds, one in 2016 and another in 2018. Of their second green bond (MXN1.1bn/USD54m), 25% were allocated to finance low-carbon building sector projects, including child development centres and various energy efficiency initiatives.¹¹ This bond also included low-carbon urban public transportation, water management and energy efficiency.¹² Mexico City also issued a sustainability bond in 2017.

Vinte, a sustainable housing development focused on increasing the quality of life of its residents issued a sustainability bond for a total of MXN800m/USD42m in 2018 and a second sustainability bond in July 2020 for 460 million pesos / 20 million dollars. Shortly after the issuance of the sovereign SDG bond in Mexico, Vinte innovated in the local market with an SDG bond for the first time in history for a company for an amount of 400 million pesos.

The total proceeds of the bond were allocated to finance or refinance sustainable infrastructure projects for the development of sustainable communities throughout the country. This includes energy efficiency and water adaptation on site of social housing buildings. The benefits include rainwater collection and absorption

First Sovereign SDG Bond in Mexico

In September 2020, Mexico surprised the world with the issuance of the first Sustainability Bond linked to the Sustainable Development Goals (SDG) promoted by the United Nations (UN) for 750 million euros.

The proceeds will be used for the general financing of the budget aligned with the 2030 Agenda and the SDGs, according to the SDG Sovereign Bond Framework.

systems and water treatment plants. Vinte has EDGE certified and Zero Gas certified homes.¹³

BBVA was the first financial corporation to issue a green bond in Mexico. Just over half (54%) of this MXN3.5bn/USD186m bond's proceeds were allocated to low-carbon buildings. Use of proceeds categories included sustainable buildings, basic infrastructure, public services as well as sustainable transport and renewable energies.¹⁴

CADU Real Estate, a housing developer, will issue the first Certified Climate Bond in Latin America under the Low Carbon Buildings Criteria of the Climate Bonds Standard (CBS) in Latin America. The certification of this green bond was possible due to the acceptance of EcoCasa, a program developed by the SHF to certify sustainable housing, as a proxy in Mexico by the CBS with the support of the UK PACT in Mexico. The company has built almost 18% of its houses under the EcoCasa program, making it the top developer of EcoCasa projects in the country. Its proceeds will be allocated to housing development, especially social housing and residential housing. Part of the bond funds will be used to build new houses with the EcoCasa or Edge certifications.

The EcoCasa Certification

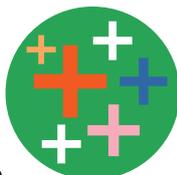
EcoCasa is a housing program that seeks to improve people's quality of life, reduce energy consumption, and protect the environment. It aims to reduce GHG emissions by at least 20% and up to 40% against the existing baseline, and to protect water.

EcoCasa-certified residential buildings that achieve a minimum of 20% reduction in CO₂e emissions against their baseline measured using the DEEVi tool can use this as a proxy for green or sustainable bonds **certification under the CBS**. The eligible version of EcoCasa is the current version as of 1 June 2020 and the tenor of the bond can be a maximum of 10 years.

Although the green and sustainable bond market in Mexico is relatively new compared with other regions, it already accounts for USD2.98bn of cumulative issuance as of the end of September 2020, there are positive signs of market growth including the sovereign SDG bond issued in September 2020 and other bonds expected in the last quarter of the year.

Other thematic bonds in Mexico considered green under the Climate Bonds Taxonomy

In 2016, NAFIN issued the first green bond by a national development bank in Latin America. The proceeds from the Climate Bond's Certified bond were directed to renewable energy projects.



ROTOPLAS issued a MXN2bn sustainability bond in 2017 with funds directed to clean and drinking water infrastructure, storage, sanitation, and water recycling. The company reopened their bond in 2018 and 2020, with a total program of MXN4bn for water efficiency.¹⁵

FIRA, a local development bank, pioneered sustainable agriculture practices in the country by issuing their first green bond in 2018. This bond was certified under the Protected Agriculture Criteria developed by the CBI with the support of FIRA and the Inter-American Development Bank. FIRA has issued two more green bonds in 2019 and 2020 to finance projects with social and environmental benefits in the agricultural sector, and recently its first social bond.

In total, Mexico has three bonds certified under the Climate Bonds Standard.

Financing instruments used in Mexico for infrastructure projects

The alternative financial instruments are also used in Mexico to invest in low-carbon buildings. Such instruments include CKDs, CERPIS and FIBRAS



which present an opportunity for issuance of labelled green products if either the underlying projects, assets or receivables of the debt are related to low-carbon and/or when the proceeds are used to finance such assets. In other countries, the alternative or structured financial instruments have used the green or sustainable label such as CRA's in Brazil¹⁶ and Pfandbrief in Germany.¹⁷ In Mexico, these models have the potential to issue thematic bonds, for example, the FIBRA PROLOGIS which recently announced its green bond issuance.¹⁸

The CKDs or Certificates of Capital Development are an alternative financial instrument unique to Mexico structured as an equity fund to finance one or more specific projects such as real estate related projects, infrastructure, highways, ports, mines, railroads, power generation, etc. According to Mexico Projects Hub, there were 22 CKDs focused on buildings as of September 2018.¹⁹ There are already projects in transportation, sustainable buildings and renewable energy that support the mitigation of CO2 emissions financed in Mexico through CKDs.

CERPIS or Investment Project Certificates are similarly structured instruments whose resources are used to finance projects, as well as to invest in shares, social shares or to finance companies, either directly or indirectly, through one or more investment vehicles. Listing is made through a restricted public offering open exclusively to institutional investors.

The FIBRAS, on their part, are investment trusts dedicated to acquisition and development of real estate in Mexico. Mexico Projects Hub also shows data for seven CERPIS and 15 FIBRAS listed on the Mexican Stock Exchange (BMV), and on the Bolsa Institucional de Valores (BIVA) which contain investments in the real estate sector. As of yet, none of them have been labelled as green, but some include eligible assets and projects. A specific type of FIBRA, known as FIBRA E is focused on energy and infrastructure investments. These investments could be green if they meet the criteria.

Mexico's Green Finance Advisory Board (CCFV), which seeks to promote financing of projects and assets with positive environmental and social impacts, stated in an article in the Real Estate Market Magazine that certain FIBRAS already fund properties with characteristics of green/sustainable buildings and some already have LEED Certification.^{20,21}

Examples include FIBRA UNO, where buildings are LEED certified / pre-certified. The focus is on reducing energy and water consumption, as well as on minimizing or mitigating GHG emissions and solid waste generation in the maintenance and operation stage, which is the most significant factor in determining the environmental footprint of a property. FIBRA Prologis has low-carbon buildings among its properties, including 29 LEED certified facilities and 17 facilities with a BOMA Best certification. Another example is the FIBRA DANHOS, whose portfolio includes LEED Platinum buildings, such as the Torre Virreyes, one of the buildings in the country which obtained this certification.

Opportunities in Mexico

Mexico has presented itself as a regional leader in green building since it is the second country in the region with the most LEED certified buildings and it is within the global top 10 countries.²² Through innovation and financial instruments seeking to advance the building sector's growth in the country. This growth has supported the demand for housing within the informal sector of the population, especially in cities and metropolitan areas. Demand for social housing increases as cities and metropolitan areas grow. Green housing initiatives from the public sector have shown to support the supply as the credits and EcoCasa certification demand increases, a certification scheme created by the Federal Mortgage Society with the support of the KfW in Mexico.²³ The public sector incentives are opening the financial channels, so the developer does not have to choose between sustainable housing and price.



Public institutions have used green finance instruments to promote the use of technologies of energy efficiency and water, mostly to meet the demand for housing. The green mortgage format has generated interest, popular especially for low-income housing finance since it benefits the final user thanks to the reduced living costs.

Private sector interest in Mexico is also high, the country possesses world-class potential for energy efficiency and climate-smart measures. There are national projects and real estate development companies listed on the BMV or BIVA with pipeline opportunities for thematic bonds financing their low-carbon building projects, including Consorcio ARA, BeGrand, Grupo Gicsa, Inmuebles Carso, Organización de Proyectos de Infraestructura (OPI), and Inmobiliaria RUBA.

Supporting institutions

BANOBRAS is a development bank in Mexico offering financial solutions for the development of infrastructure and public service projects. Banobras collaborated with the National Government and other institutions to create the Mexico Project Hub platform, which creates a link between investment projects with domestic and foreign investors, encouraging long-term infrastructure financing. The system's methodology shows projects rated through sustainability criteria based on public information about each project.



SHF is a financial institution belonging to the Development Bank that seeks to promote access to quality housing by granting loans and guarantees for the construction, acquisition and improvement of housing, preferably of social interest. It is one of the institutions that promote sustainable housing in the country by attacking market needs such as the EcoCasa program that they developed with the IDB and KfW.²⁴

The Institute of the National Housing Fund for Workers, (Infonavit) is the institution with the objective of fulfilling worker's right to housing. Its main function is to offer mortgage loans. Additionally, it has financial products that help measure the efficiency of homes and improve the quality of life through the use of eco-technologies.²⁵

CONUEE serves as the technical body for the sustainable use of energy in Mexico. With the aim of promoting energy efficiency, it has developed evaluation systems for sustainable buildings similar to the US "Energy Star" evaluation system in collaboration with INECC.²⁶

SUMe, Sustentabilidad para México is a non-profit association fostering collaborative projects towards a sustainable Mexico in order to improve the quality of life of the population.

SUMe is officially the Council established for Mexico from the World Green building Council (WorldGBC) and has an alliance with the USGBC for developing capacities and advance market transformation through educational programs.

IBALCA, a group of experts in sustainable project consulting, offers quality support throughout the life cycle of projects, especially construction projects to ensure that they comply with robust international quality and efficiency standards.

How do we identify low-carbon buildings?

COMMERCIAL

For Mexico City, the local code on Climate Bonds website must be used. For all others use the following proxies

LEED Gold or Platinum

Together with 30% improvement above the levels in ASHRAE 90.1

EDGE certified

(Only water, energy and carbon emissions)

LBC - Living Building Challenge Certified

BOMA Best - Building Owners and Managers Association

Currently in process of analysis by CBI

RESIDENTIAL

There are no local codes for residential building in Mexico at the moment. Use the following proxies for the time being.

ECOCASA with a minimum of 20% reduction in CO₂e emissions against their baseline measured using the DEEVi tool.

LEED Gold or Platinum

Together with 30% improvement above the levels in ASHRAE 90.1

EDGE certified

(Only water, energy and carbon emissions)

LBC - Living Building Challenge Certified

Commercial and residential buildings can be Certified for upgrade projects if they achieve an emission reduction of 30%-50% (depending on bond term) from a baseline.

For more information about the Buildings Criteria and the various sub-categories that are available for certification please visit the Climate Bonds website.

Low-carbon building certifications in Mexico accepted by the Climate Bonds Standard

Within the Climate Bonds Standard and associated Sector Criteria, the residential and non-residential building criteria uses local building codes or energy ratings/labels as a proxy for performance of the top 15%



buildings in a city. For commercial buildings, the low-carbon trajectory, proxies or a significant upgrade can be utilized depending on the building's location.

The following are the proxies to identify green/sustainable buildings in Mexico eligible for certification under the Climate Bonds Standard.

The figure above details the tool to use for calculating low-carbon building depending on the building's location.

First conversation about the building sector in Mexico

In July 2020, the Instituto Tecnológico Autónomo de México (ITAM) and Climate Bonds, with the support of the UK PACT programme by the UK Government, hosted a RoundTable discussion on green and sustainable buildings in Mexico.²⁷

Experts highlighted the need for a nationwide emissions baseline to set criteria and attract investments into commercial buildings. To make this possible in Mexico, it was recommended to enforce existing building codes such as NOM-008-ENER-2001 for non-residential buildings and NOM-020-

ENER-2011 for residential building energy efficiency. Municipalities, states, and federal entities play a key role in incentivizing the implementation and local codes.

The need to incorporate urban planning into sustainability or low-carbon building indicators specific to low-carbon buildings in Mexico was also mentioned. For example, developing housing in areas disconnected from cities would increase carbon footprint and decrease residents' quality of life. On the other hand, retrofitting of buildings in Mexico is of utmost importance and should be included into low-

carbon building definitions, establishing a baseline and a minimum percentage of improvement in GHG emissions.

Considering the importance and the potential of the buildings sector for mitigation and adaption to climate change, it should be considered a priority in the country. Other environmental goals such as energy and water conservation are highlighted. For them, it is important to better present the overall benefits including the economic value, social benefits and improvements to health and wellbeing.

How to issue a green bond/loan

Who can issue green bonds?

Any entity which has suitable green assets can issue green bonds and/or obtain green loans. Suitable green assets include renewable energy, low carbon transport, low carbon buildings, sustainable water, agriculture, shipping, waste management, sustainable land use as well as climate change adaptation measures such as flood defences.



1 Develop a green bond framework

- Define eligibility criteria for projects/assets
- Create selection process
- Set up tracking & reporting

Available guidelines & standards:

International: EU Taxonomy, Green Bond Principles (GBP), Green Loan Principles, Climate Bonds Taxonomy and Climate Bonds Standard

Country-specific: Brazil, Chile, Mexico, Dominican Republic, Panama, Colombia, Ecuador, Paraguay (SDG), Argentina, Peru, and Costa Rica



2 Best practice: Arrange an external review



Assurance report: an external party confirmation of compliance with GBP/GLP

Second Party Opinion: an external assessment of the issuer's green bond framework, confirming GBP compliance and analysing the eligible asset categories

Green rating: an evaluation of the green bond and framework against a third-party rating methodology, which considers the environmental aspects of the investments. In LAC, these mainly include products developed by international rating agencies such as S&P and Moody's.

Verification report for Certified Climate Bond: third party verification, pre- and post-issuance, which confirms that the use of proceeds adheres to the Climate Bonds Standard and Sector Criteria and the Paris agreement to keep global warming to 2°C and achieve full decarbonisation by 2050

3 Check for support mechanisms:

In some LAC countries, it is mainly stock exchanges that provide some support services for green bond issuers. Although financial support is rare (only Costa Rica's BNV seems to offer reduced fees for green bonds issuers, as well as helping them in organising roadshows), it is worth checking this locally, especially since green finance policy is changing rapidly. Other local organisations, such as Brazil's CEBDS and Mexico's CCFV also be able to provide support.



4 Issue the bond / loan



5 Post-issuance reporting

Report annually to confirm that the funds are allocated to green projects / assets

Best practice: Disclose environmental impacts of financed projects in absolute terms and relative to an appropriate benchmark



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