

ISSUE BRIEF

THE ROAD FROM PARIS: MEXICO'S PROGRESS TOWARD ITS CLIMATE PLEDGE

In its nationally determined contribution (NDC), Mexico pledged to unconditionally cut its greenhouse gases (GHG) and black carbon emissions by 25 percent compared with business as usual (BAU) levels by 2030. Depending on international support, this target could increase to as much as 40 percent. As the first developing country to pass a general climate change law, Mexico has been making progress on climate change policies both domestically and internationally with partners including the United States and Canada. On September 21, 2016, Mexico ratified and formally joined the Paris Agreement. While this is an important step, Mexico must increase its efforts to transition away from fossil fuels and toward renewable energy resources to satisfy its NDC.

OVERVIEW OF NATIONAL CIRCUMSTANCES

Mexico has the 10th-largest population in the world, with 127 million inhabitants. As of 2015, its gross domestic product (GDP) was the fifteenth-largest in the world, and as a major non-OPEC oil producer, the country provided approximately 9 percent of all U.S. crude oil imports.¹

In 2015, petroleum and natural gas accounted for most of Mexico's total fuel consumption for transportation and electricity generation, at 46 percent and 40 percent, respectively.² Fossil fuels generate approximately 80 percent of Mexico's electricity, with natural gas recently overtaking petroleum products as the leading fuel stock for electricity generation. In contrast, Mexico's renewable

energy potential—particularly in resources like solar and wind—remains largely untapped.³ Mexico is the 13th-largest GHG emitter in the world and ranks number two in Latin America, after Brazil.⁴

MEXICO'S CLIMATE PLEDGE

Mexico was the first developing country to submit a climate pledge to the Paris Climate Conference in December 2015. The pledge includes both unconditional and conditional contribution targets. The unconditional target is a reduction of GHG and black carbon emissions by 25 percent of BAU levels by 2030.⁵ (BAU is based on economic growth in the absence of climate change policies, starting in 2013.) This



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THE PARIS AGREEMENT

In late 2015, the 21st session of the Conference of the Parties (COP21) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) was held in Paris. The 196 nations that are part of the UNFCCC approved the Paris Agreement, which aims to limit global temperature rise to 2 degrees Celsius, and to make best efforts to keep it to 1.5 degrees. To that end, countries submitted intended nationally determined contributions (INDCs) detailing the level to which they planned to cut emissions and their plans to reach that goal. The Paris Agreement entered into force on November 4, 2016—and the INDCs are now formally enshrined as part of the Agreement—and hereafter referred to as nationally determined contributions (NDCs).

entails cutting GHGs by 22 percent and black carbon by 51 percent by 2030, and peaking net emissions by 2026. Mexico will also reduce its emissions intensity per unit of GDP by 40 percent between 2013 and 2030. In addition, Mexico conditionally pledged a 40 percent reduction of GHG and black carbon emissions (36 percent and 70 percent, respectively), contingent on international support.

Mexico's pledge was also the first to address adaptation to climate change, including increasing the climate resilience of communities, key ecosystems, infrastructure, and economic sectors. This is a critical element for a country as vulnerable as Mexico. Importantly, the adaptation component focuses on preparing for and preventing climate vulnerabilities, rather than just responding to climate-related disasters. Its goals include reducing the number of vulnerable municipalities by at least 50 percent, increasing financing for disaster prevention as opposed to disaster response, eliminating deforestation by 2030, and incorporating adaptation criteria in public infrastructure investment projects.

WHAT IS BLACK CARBON?

Black carbon, or soot, is one of four major short-lived climate pollutants (SLCPs) that remain in the atmosphere for a relatively brief time. Black carbon is the second-most powerful climate-warming pollutant after carbon dioxide, and international experts have linked it to serious health problems including respiratory and cardiovascular disease, cancer, and premature death. Because SLCPs stay in the atmosphere only briefly, the long-term climate effects of black carbon are uncertain and vary considerably across regions.⁶ However, reducing these emissions can provide substantial and almost immediate co-benefits for human health. Worldwide, the biggest source of black carbon is open biomass burning. In Mexico specifically, the transportation sector is the largest source—particularly trucks, buses, cars, and other vehicles running on diesel fuel.⁷ The inclusion of black carbon reduction in Mexico's NDC is an important addition. Separating GHG emissions from black carbon allows for comparison between Mexico's pledge and other countries' pledges because most countries have not included a black carbon target.

NDC IMPLEMENTATION

Mexico has detailed some of its efforts to reduce emissions in the industrial, transportation, urban, agriculture, and forestry sectors.⁸

Industry

Mexico's goal of producing 35 percent of its energy from clean sources by 2024 is expected to reduce industrial emissions. Substituting heavy fuels with natural gas and biomass will also reduce emissions from industry. Methane leaks, venting, and burning will be reduced, and soot particulates from industrial equipment and facilities will be controlled.

Transportation

Mexico is already working with the United States and Canada to harmonize regulations for existing and new vehicles. The country will also increase the availability of ultralow-sulfur fuels and the number of vehicles using natural gas and cleaner fuels. Mexico aims to have at least 1 million natural gas vehicles on the road by the end of the current administration of Enrique Peña Nieto, in 2018.

In addition, Mexico aims to modernize its vehicle fleet by importing fewer used vehicles and will promote multimodal transport for cargo and passengers.

Urban

Mexico will promote residential solar heaters and panels and address methane recovery at municipal dumps and residual water treatment plants.

AGRICULTURE AND FORESTRY

Mexico aims to increase resiliency and sustainably modernize rural areas, achieve a zero-deforestation rate by 2030, restore ecosystems, and use biodigesters to produce biogas from agricultural waste on farms.

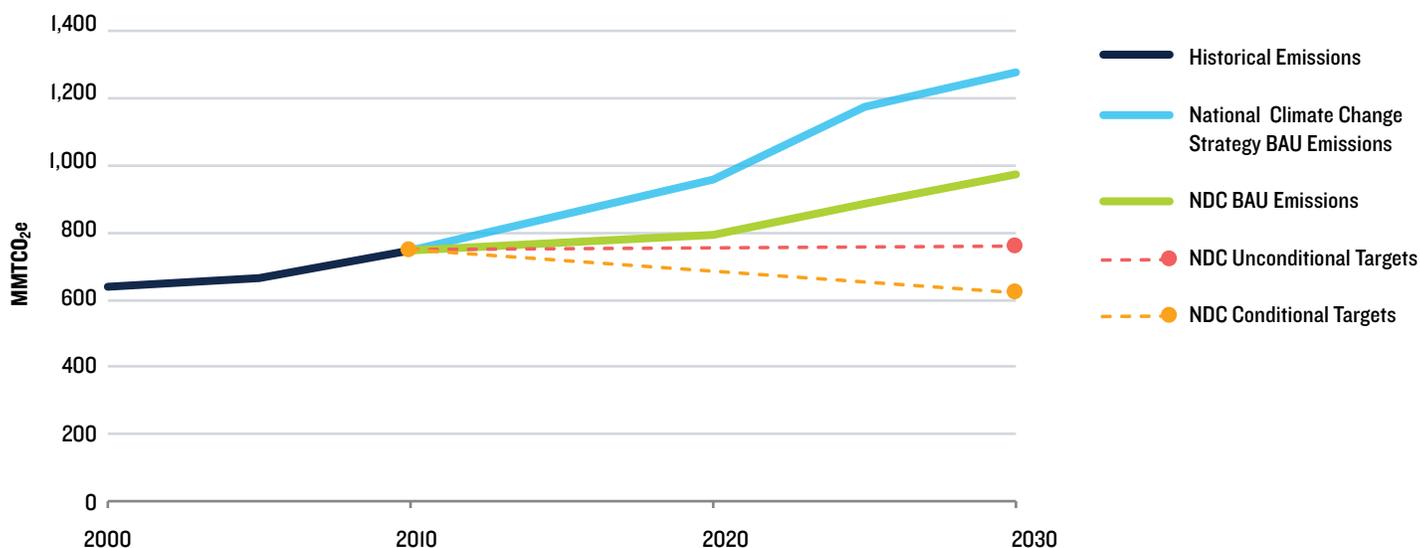
CLIMATE CHANGE POLICY

The ratification of the Paris Agreement, which entered into force on November 4, 2016, builds on Mexico's national, international, and subnational efforts to mitigate climate change.

National Policy

Mexico's first broad-reaching National Climate Change Strategy (Estrategía Nacional de Cambio Climático, or ENCC) was issued in 2007. The second and most recent

MEXICO'S GHG EMISSIONS INCLUDING LULUCF



Source: Natural Resources Defense Council, based on Mexico's "National Climate Change Strategy) 10-20-40 Vision" and INDC submission to the UNFCCC.

version from June 2013 sets baseline scenarios and emissions projections and targets and provides a vision for addressing climate change over the next 10, 20, and 40 years. Mexico also outlines its short-term climate actions through the Special Program on Climate Change (Programa Especial para Cambio Climático, or PECC), which is designed to help meet national climate change mitigation and adaptation goals. The PECC is a cross-sector policy that must be implemented within each presidential term. In April 2014, Peña Nieto's government released Mexico's second PECC, covering 2014 to 2018 (the first was for 2009 to 2012).⁹

In 2012, Mexico became the first developing country to pass a General Climate Change Law, which institutionalized the economy-wide goal of reducing GHG emissions by 30 percent from a BAU baseline by 2020 and reducing emissions by 50 percent below the 2000 level by 2050, contingent on international support. Additional key provisions in the law are (1) creating a national emissions inventory and registry, (2) establishing the option to develop a voluntary emissions trading system, and (3) creating a Climate Change Fund to attract and channel resources toward climate action.¹⁰

Mexico's target to generate 35 percent of its electricity from clean energy sources by 2024 was originally established under the 2008 Law for the Development of Renewable Energy and Energy Transition Financing (LFAERTE) and reiterated in the General Climate Change Law. Under Mexican law, "clean energy" refers to wind, solar, marine, geothermal, bioenergy, waste-to-energy, hydrogen, hydropower, nuclear, efficient cogeneration, and thermal plants with carbon capture and storage, along with low-carbon and other technologies identified by the Ministries of Energy and the Environment under certain criteria. The

Energy Transition Law—passed in December 2015 as the final piece of secondary legislation under Mexico's energy sector reform—establishes a clear policy framework for clean energy, energy efficiency, and transmission grid modernization. It sets short- and long-term milestones of 25 percent clean energy generation by 2018, 30 percent by 2021, and 35 percent by 2024. In addition, the law defines an emissions intensity limit as a criterion for what should count as clean energy. Lastly, it establishes government programs to boost energy efficiency and develop smart grids, among other solutions.¹¹

Mexico is also utilizing several market and financial mechanisms to reach its climate goals. The energy sector reform established a new clean energy certificates market that will go into effect in 2018. Under this new market, all large consumers are required to meet a minimum level of clean energy consumption: 5 percent in 2018, rising to an expected 5.8 percent in 2019, and continuing to increase over time.¹² In 2014, Mexico introduced a carbon tax of approximately \$3.50 per ton of carbon dioxide equivalent that applies to fossil fuels, excluding natural gas.¹³ In Marrakech at COP22, Mexico also launched a carbon market simulation to familiarize companies with carbon trading and guide the development of a real carbon market to be implemented in 2018.

Additionally, a green bonds market is emerging in Mexico and a Consultative Board for Climate Finance has been created as a joint effort by the Mexican Stock Exchange and Climate Bonds Initiative to promote green standards for different types of projects and markets.¹⁴ The Mexican development bank, Nacional Financiera (NAFIN), issued the nation's first green bond, worth US\$500 million, to finance renewable energy initiatives in 2015.¹⁵ The success of this initiative led NAFIN to issue a second offering of green

bond, this time in the local currency, worth MXN\$2 billion in pesos (approximately US\$100 million) in September 2016.¹⁶ Subsequently, Mexico sold US\$2 billion in green bonds to partially finance the New International Airport for Mexico City.¹⁷ In December 2016, Mexico City became the first city in Latin America to issue a green bond. The US\$50 million bond will help pay for energy efficient street lighting, bus rapid transit improvements, and modernizing water infrastructure.¹⁸ Mexico is also participating in a green bond initiative with the Inter-American Development Bank to finance energy efficiency projects.¹⁹

International Action

Mexico has displayed substantial regional and global leadership on climate change. Regional efforts have produced several agreements, including two memorandums of understanding between Mexican ministries and the State of California signed in 2014. The first memorandum seeks to promote technical sharing and joint implementation of low-carbon, clean energy, energy efficiency, and biofuel projects. It is designed to promote cross-border investment in renewable energy projects and explore ways to integrate Baja California Norte into Californian electricity markets.²⁰ The second memorandum aims to enhance cooperation and align environmental policies.²¹

At the 2016 North American Leaders Summit among Canada, Mexico and the United States, former U.S. President Barack Obama, Canadian Prime Minister Justin Trudeau, and Mexican President Enrique Peña Nieto released the North American Climate, Clean Energy, and Environmental Partnership Action Plan. The plan aims to generate 50 percent clean energy and reduce methane emissions within the oil and gas industry 40 to 45 percent by 2025 through a variety of technologies, collaborative research, and environmental standards and regulations across a variety of sectors.²² At COP22, Mexico released its 2050 plans for reducing GHG emissions alongside the U.S. and Canada.²³

On the global stage, Mexico has shown support for the ambitious Montreal Protocol to phase down harmful hydrofluorocarbons (HFCs) and worked within the International Civil Aviation Organization (ICAO) to reduce emissions from air travel.²⁴ Mexico has also voluntarily pledged \$10 million to the Green Climate Fund, finalizing the contribution in 2015—an unexpected move for a developing country.²⁵

State and Municipal Action

Mexico is also taking climate action at the state and municipal levels. In 2015, the city of Jalisco hosted the Second Climate Change Summit of the Americas, which called on local governments, public organizations, and indigenous groups to do their part toward meeting or exceeding national and international goals. Forty-two representatives of subnational governments from Mexico and 15 other countries signed on to the closing declaration, the Jalisco Call to Action. This agreement called for (1) running all government operations on 100 percent clean

energy by 2050, (2) cutting GHG emissions by 80 percent by 2050, and (3) reducing deforestation by 80 percent by 2020.²⁶ The summit also produced a joint statement of cooperation between Mexico and the Canadian provinces of Ontario and Quebec affirming a desire to expand and collaborate on a cap-and-trade system and the promotion of North American carbon markets.²⁷

Meanwhile, Mexico City is working to improve energy efficiency in its buildings. In June 2016, the city's Environment Ministry published updated construction regulations that include measures for energy efficiency retrofits and new construction.²⁸ The Peña Nieto administration is also working with the World Bank on the Municipal Energy Efficiency Project to finance the design and implementation of energy efficiency standards and project-funding mechanisms in select cities, in an effort to promote their adoption across the country.²⁹ In November-December 2016, Mexico City also hosted the C40 Mayors Summit, which aims to advance urban solutions for addressing climate change. At the summit, Miguel Ángel Mancera, mayor of Mexico City, discussed his "Green Corridor" transportation plan and how to leverage financing.³⁰

THE ROAD AHEAD

While Mexico has shown significant climate leadership, greater clarity is still needed on its strategy for reducing its emissions in key sectors, particularly electricity and transportation. In addition to defining a clear path to its 2020 goal, Mexico should identify specific needs in terms of financing, technology transfer, and capacity development that will allow it to meet the 2030 conditional target. Mexico should identify how mitigation results will be monitored, measured, reported, and verified—as well as the costs of noncompliance. Mexico should set clear performance indicators and identify financial investment needs for climate change adaptation.

Moving forward, Mexico should develop a clear plan for transitioning away from fossil fuels by prioritizing and boosting electricity generation from renewable sources such as solar, wind, and geothermal. Robust policies and regulations are necessary to achieve this transition and enable rapid deployment through the mobilization of greater public and private investment and the implementation of clear monitoring, reporting, and verification requirements.

It is also critical that Mexico optimize its electricity transmission system to facilitate the integration of renewable energy resources, especially wind and solar. As Mexico plans, modernizes, and operates its transmission system, it should give priority to investments that advance its climate and clean energy goals. Transmission planning should identify priority resource zones that avoid social and environmental conflicts.

Mexico also needs stronger energy efficiency standards that can help further reduce emissions. While there have been individual municipal energy efficiency efforts

and a limited national program for energy efficiency investments, regulatory inconsistencies and financing gaps exist throughout the country. A nationwide policy, with a minimum efficiency standard, is needed in order to provide both financial support and technical guidance to develop standards in all states and municipalities. Efficiency standards and appropriate funding can help minimize emissions from rapid urbanization and steadily increasing electricity demand.

Finally, Mexico also has significant opportunities to reduce transportation emissions by enacting and implementing the vehicle and fuel standards that have been in development for years. Regulating fuel quality, vehicle emissions, and vehicle efficiency is critical to cutting national emissions of carbon dioxide and black carbon. Studies have shown that

this package of standards would produce both financial and health benefits.³¹ The government has repeatedly pledged to work with the United States to harmonize the two countries' heavy- and light-duty vehicle emissions standards and fuel quality regulations.³² Yet to date only the fuel quality regulation has been enacted, and questions exist about the government's ability to implement it.³³

Mexico continues to solidify its global leadership role on climate change. But while important steps have been taken, Mexico will need ensure strong actions are taken across all sectors and continually revisit the ambition of its targets. By working with international partners and collaborating with the private sector and civil society, the country can move toward meeting its Paris climate commitments.

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