

BROWN TO GREEN: 2019

THE G20 TRANSITION TOWARDS A NET-ZERO EMISSIONS ECONOMY

MEXICO





Mexico's greenhouse gas (GHG) emissions are - per capita - below the G20 average.

Total GHG emissions have increased by 70% since 1990, and are projected to rise further.

Greenhouse gas (GHG) emissions (incl. land use) per capita1

(tCO₂e/capita)

Data for 2016 Source: CAT 2019; PRIMAP 2018; World Bank 2019

Trend (2011-2016)



Mexico

/ - 2 %



G20 average

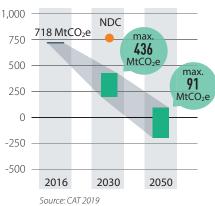
Note: Since 2000, Mexico has published six National Communications to the UNFCCC. As Mexico follows IPCC methodologies, some discrepancies arose when trying to match the data with PRIMAP methodology.

Mexico is not on track for a 1.5°C world.

Mexico needs to reduce its emissions to below 436 MtCO₂e by 2030 and to below 91 MtCO₂e by 2050 to be within its fair-share range compatible with global 1.5°C IPCC scenarios. Mexico's 2030 NDC would only limit its emissions to 755 MtCO₂e. All figures are drawn from the Climate Action Tracker and exclude land use emissions.

1.5°C compatible pathway²

(MtCO₂e/year)



Recent developments3



The government has begun construction of the Dos Bocas oil refinery, refurbishment of the six oil refineries, and extraction of non-conventional sources of hydrocarbons.



The government cancelled the fourth round of electricity auctions, the main policy instrument in Mexico to promote renewable energy.



In June 2019, a company kicked off the first private auction for long-term contracts for renewable energy projects.

Key opportunities for enhancing climate ambition³

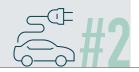
Mexico's 2050 target of -50% from 2010 levels is not in line with a 1.5°C pathway.

Mexico should adopt the target of net-zero emissions for 2050.



Mexico's transport sector is still dominated by fossil fuels.

Mexico should adopt a strategy to phase out fossil fuel light-duty vehicles.



Coal still accounts for 8% of the electricity mix.

Mexico should decide to phase out coal by 2030.



This country profile is part of the **Brown to Green 2019** report. The full report and other G20 country profiles can be downloaded at: http://www.climate-transparency.org/g20-climate-performance/g20report2019

MEXICO -SOCIO-ECONOMIC CONTEXT



Human Development Index

The Human Development Index reflects life expectancy, level of education, and per capita income. Mexico ranks high, in the middle of the G20 range.

Data for 2017 | Source: UNDP 2018



Gross Domestic Product (GDP) per capita

(PPP US\$ const. 2018, international)

20,365

Data for 2018 | Source: World Bank 2019



Population projections

(millions)

The World Bank expects Mexico's population to grow by 10% by 2050.



Source: World Bank 2019

Death through ambient air pollution

(total ambient air pollution attributable deaths)

Almost 29,000 people die in Mexico every year as a result of outdoor air pollution, due to stroke, heart disease, lung cancer and chronic respiratory diseases. Compared to the total population, this is at the lower end of the G20 range.

Data for 2016 Source: World Health Organization 2018



1.1
G20 range
0.3
Mexico
0.1
Ambient air pollution attributable death rate per 1,000 population per

year, age standardised

JUST TRANSITION³

There is a need for a paradigm shift in policymaking towards a more holistic approach. This could be done by looking at policy coherence in order to scale up national climate action and guarantee a just energy transition. Climate change has a low profile, is an isolated agenda item, and does not drive the National Development Plan for 2019-2024. Also, Mexico is going backwards in the transformation of its energy sector and compliance with the Paris Agreement.

In Mexico the energy forecasts continue to show an extreme dependence on fossil fuels and future technological lock-in. The latest Program for the Development of the National Electric System estimates a high consumption of natural gas and the sustained use of coal up until 2033. Additionally, the federal government is in the process of building a

new oil refinery, extracting more non-conventional sources of hydrocarbons to reduce Mexico's reliance on imports and guarantee energy security and self-sufficiency. These announcements have encouraged a political discussion over the urgent need for energy transition in Mexico. Nonetheless, social and environmental concerns are being taken out of the decision-making process. It is crucial that



the energy transition process takes into account the new socio-spatial dimensions of largescale renewable energy projects, and shifts towards a more decentralised and democratic system.

Legend for all country profiles

Trends



The trends show developments over the past five years for which data are available

The thumbs indicate assessment from a climate protection perspective.

Decarbonisation Ratings⁴

These ratings assess a country's performance compared to other G20 countries. A high scoring reflects a relatively good effort from a climate protection perspective but is not necessarily 1.5°C compatible.



Policy Ratings⁵

The policy ratings evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.



For more information see the Annex and Technical Note

MITIGATION BIG PICTURE

MEXICO

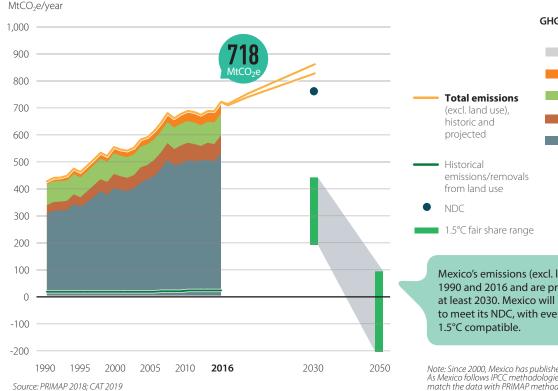


Mexico's GHG emissions have increased by 70% (1990-2016) and the government's climate targets for 2030 (-22% from 2000 levels) are not in line with a 1.5°C pathway.

In 2030, global GHG emissions need to be 45% below 2010 levels and reach net zero by 2070.

Source: IPCC SR1.5 2018

Total GHG emissions across sectors²



GHG emissions by sector

Other sectors Waste Agriculture Industrial processes Energy

Mexico's emissions (excl. land use) rose by 70% between 1990 and 2016 and are projected to continue increase until at least 2030. Mexico will need to scale up climate action to meet its NDC, with even more effort required to become

Note: Since 2000, Mexico has published six National Communications to the UNFCCC. As Mexico follows IPCC methodologies, some discrepancies arose when trying to match the data with PRIMAP methodology.

Nationally-determined contribution (NDC): Mitigation

Targets	To unconditionally reduce 25% of GHG and short-lived climate pollutant emissions below business-as-usual by 2030. This commitment implies a reduction of 22% of GHG and a reduction of 51% of black carbon. Net emissions are to peak starting from 2026, and emissions intensity per unit of GDP will reduce by around 40% from 2013 to 2030
Actions	Actions mentioned (sectors: energy, transport, urban, agriculture and forestry)

Source: UNFCCC, NDC Mexico 2016

Climate action tracker (CAT) evaluation of NDC²



Source: CAT 2019

Long-term strategy (LTS) to be submitted to the **UNFCCC by 2020**

Status	Submitted to UNFCCC in 2016, based on 2013 National Climate Change Strategy
2050 target	-50% from 2000 levels
Interim steps	_
Sectoral targets	-

Source: UNFCCC, LTS of respective country

The 2016 long-term strategy has no measurable indicators and represents no progress from the 2013 strategy. The 2018 General Law for Climate Change mandates the government to elaborate a 2050 mitigation roadmap with sectoral mitigation targets for the short, mid and long term, expected by March 2020.

MITIGATION ENERGY



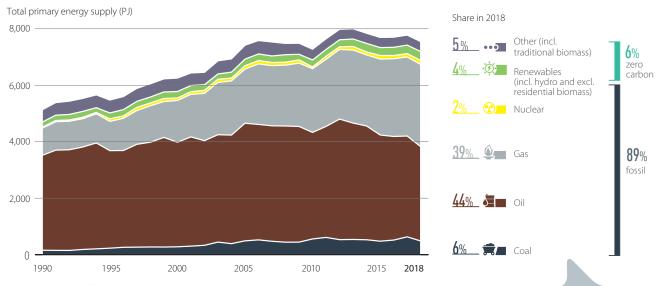
MEXICO

Fossil fuels still make up around 89% of Mexico's primary energy supply (including power, heat, transport fuels, etc) – this is one of the highest levels in the G20. Despite the increase in renewable energy over the last two decades, the carbon intensity of the energy mix has barely changed.

The share of fossil fuels globally needs to fall to 67% of global total primary energy by 2030 and to 33% by 2050 and to substantially lower levels without Carbon Capture and Storage.

Source: IPCC SR1.5 2018

Energy mix7

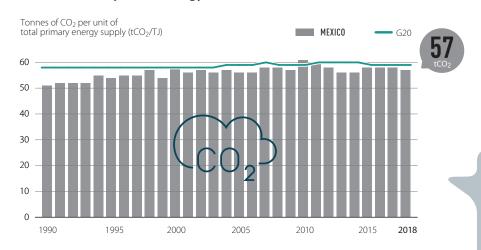


Source: Enerdata 2019

Note: Primary energy supply data from Enerdata include net energy imports, in contrast to data provided by Mexico's Energy Ministry.

This graph shows the fuel mix for all energy supply, including energy used for electricity generation, heating, cooking, and transport fuels. Fossil fuels (oil, coal and gas) make up 89% of the Mexican energy mix. This is above the G20 average (82%).

Carbon intensity of the energy sector



Rating of carbon intensity compared to other G20 countries⁴



Source: own evaluation

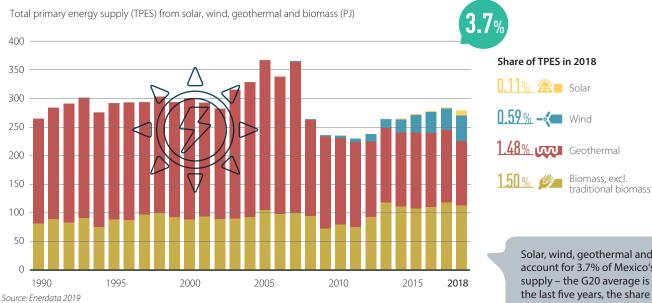
Carbon intensity shows how much CO_2 is emitted per unit of energy supply. The carbon intensity of Mexico's energy mix is at 57 tCO₂, which is around the G20 average but double the level of frontrunners France or Brazil. The level has slightly increased in recent years, reflecting the growing share of fossil fuels in the energy mix.

MITIGATION **ENERGY**



MEXICO

Solar, wind, geothermal and biomass development8



Rating of share in TPES compared to other G20 countries⁴



Solar, wind, geothermal and biomass account for 3.7% of Mexico's energy supply – the G20 average is 6%. In the last five years, the share of these sources in Mexico's total energy supply has increased by around 12%, less than the G20 average (+29%, 2013-2018). Bioenergy (for electricity, biofuels for transportation and heat) and geothermal make up the largest shares.

Energy supply per capita

Total primary energy supply per capita (GJ/capita)

G20 average

The level of energy supply per capita is closely related to economic development, climatic conditions and the price of energy. However, a high level of inequality in energy use prevails.

At 58 GJ/capita, energy supply per capita in Mexico is well below the G20 average, and has decreased (-11%, 2013-2018) in contrast to the increasing G20 average (+1%).

(2013-2018) **-11%**





Data for 2018 | Source: Enerdata 2019: World Bank 2019

Rating of energy supply per capita compared to other G20 countries4





MITIGATION ENERGY



MEXICO

Mexico uses comparatively little energy, both if counted per capita and per unit of GDP, and the level is declining due to unequal energy access. But energy-related CO₂ emissions have not yet begun to decline because of high GDP and population growth rates, and uneven patterns of energy consumption.

Global energy and process-related CO_2 emissions must be cut by 40% below 2010 levels by 2030 and reach net zero by 2060.

\$1.5°C°

Source: IPCC SR1.5 2018

Energy intensity of the economy

(TJ/PPP US\$2015 million)



Trend (2013-2018)



-12%

Data for 2018 | Source: Enerdata 2019; World Bank 2019

This indicator quantifies how much energy is used for each unit of GDP. This is closely related to the level of industrialisation, efficiency achievements, climatic conditions or geography – and not necessarily due to the decoupling of emissions. Mexico's energy intensity is among the lowest in the G20 and has decreased more (-16%, 2013-2018) than the G20 average of -12%.

Rating of energy intensity compared to other G20 countries⁴



Source: own evaluation

Energy-related CO₂ emissions⁹

CO₂ emissions from fuel combustion (MtCO₂/year) 500 Share of total energy-related 450 CO₂ emissions in 2018 400 Transport 350 Agriculture 300 Buildings 250 Industries 200 (incl. autoproducers) 150 Other energy sector 100 Electricity and heat 50 2015 1995 2000 2005 2010 2018 1990

Note: Since 2000, Mexico has published six National Communications to the UNFCCC. As Mexico follows IPCC methodologies, some discrepancies arose when trying to match the data with Enerdata methodology.

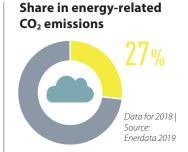
The largest driver of overall GHG emissions are CO_2 emissions from fuel combustion. In Mexico, they have remained almost stable over the last decade, with only minor ups and downs. The transport (22%) and power and heat sector (27%) are the largest contributors.

MITIGATION POWER SECTOR



MEXICO

79% of Mexico's electricity comes from fossil fuels - this is one of the highest levels in the G20. Renewable power is growing less than the G20 average. In order to stay below 1.5°C, Mexico needs to phase out coal power by 2030, and speed up the uptake of renewables.

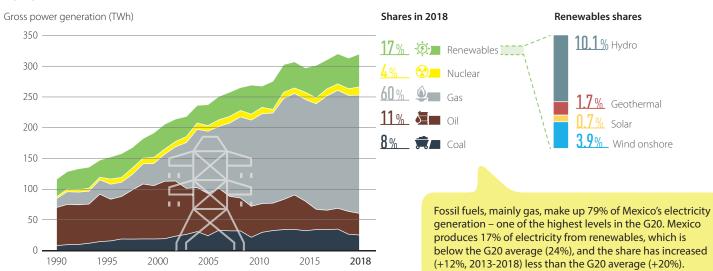


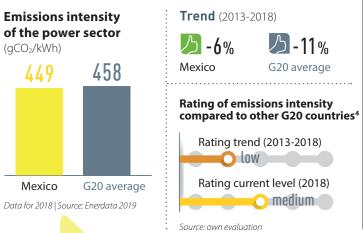
Coal must be phased out in the EU/OECD no later than 2030, in the rest of the world no later than 2040. Electricity generation needs to be decarbonised before 2050, with renewable energy the most promising option.5

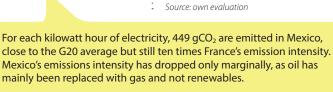
Source: IPCC SR1.5 2018; Climate Analytics 2016; Climate Analytics 2019

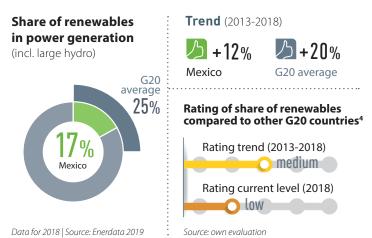
STATUS OF DECARBONISATION

Power mix









MITIGATION POWER SECTOR



MEXICO

POLICIES⁵

Renewable energy in the power sector



The 2015 Energy Transition law aims to increase the share of renewables in the power mix to 35% by 2024 and to 50% by 2050 (aspirational only). Since 2016, Mexico has held auctions for renewable energy capacity but the government announced in 2019 it was cancelling the auctioning scheme.

The government has cancelled the auctioning scheme and has not put an alternative in place.

Source: own evaluation

Coal phase-out in the power sector



Mexico joined the Powering Past Coal Alliance at COP23, yet it plans to add new coal-fired capacity in 2020. The new government has announced the purchase of 400 Mtons of coal, and has decided to modernise some coal power plants rather than retiring them as originally foreseen.

Source: own evaluation

MITIGATION TRANSPORT SECTOR



Mexico's transport sector is still dominated by fossil fuels, and electric vehicles (EVs) make up only 0.1% of car sales. In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.

Share in energy-related CO₂ emissions 32% direct electricity

Data for 2018 | Source: Enerdata 2019

The proportion of low-carbon fuels in the transport fuel mix must increase to about 60% by 2050.



Source: IPCC SR1.5 2018

STATUS OF DECARBONISAT

Transport energy mix

Final energy consumption of transport by source (PJ/year) 2.100 1.800 1 500 1,200 900 600 300 1990 1995 2000 2010 2015 2018

Share in 2018

0.0%_ Biofuels Electricity

Electricity and biofuels make up less than 1% of the energy mix in transport.

MITIGATION TRANSPORT SECTOR

MEXICO

STATUS OF DECARBONISATION (continued)

Transport emissions per capita¹⁰

(tCO₂/capita,

excl. aviation emissions)

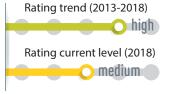


Data for 2018 Source: Enerdata 2019; World Bank 2019 Trend (2013-2018)

/ -12%

G20 average Mexico

Rating of transport emissions compared to other G20 countries4



Source: own evaluation

Aviation emissions per capita¹¹

(tCO₂/capita)



Data for 2016 Source: Enerdata 2019; IEA 2018

Trend (2011-2016)



Mexico

G20 average

Rating of aviation emissions compared to other G20 countries⁴



Source: own evaluation

Motorisation rate

(vehicles per 1,000 inhabitants)



Data for 2015 | Source: Agora 2018

Market share of electric vehicles in new car sales (%)



Data for 2018 | Source: IEA 2019

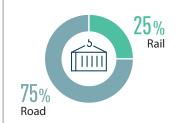
Passenger transport

(modal split in % of passenger km)



Freight transport

(modal split in % of tonne-km)



Data for 2016 | Source: Agora 2018

Phase out fossil fuel cars



Mexico has carbon emission standards in place for cars which are, however, not very stringent nor aligned with international recommendations. Only a few cities offer support for electric vehicles. An electric vehicle strategy is currently under development but the government has not yet set a phase-out date for fossil fuel cars.

Phase out fossil fuel heavy-duty vehicles



Mexico has emission standards for heavyduty vehicles (HDVs), but they are not very stringent nor aligned with the US EPA recommendations. There is no strategy to reduce absolute emissions from freight transport.

Modal shift in (ground) transport



Since 2009, Mexico's support programme PROTRAM offers grants for sub-national governments to implement urban public transport projects. The 2013 Sustainable Urban Mobility Strategy aims to promote interconnected cities, and local governments are required to develop local plans. However, there is no longer-term strategy for promoting modal shift.



The 2019 federal budget does not allocate funds for the Sustainable Urban Mobility Strategy.

Source: own evaluation

Source: own evaluation

MITIGATION BUILDINGS SECTOR



MEXICO

Mexico's building emissions - including heating, cooking and electricity use - make up only 16% of total CO₂ emissions. Per capita, building-related emissions are well below the G20 average, but Mexico needs to reduce these emissions further for a 1.5°C compatible pathway.

Share in energy-related CO₂ emissions



Data for 2018 | Source: Enerdata 2019

Global emissions from buildings need to be halved by 2030, and be about 80% below 2010 levels by 2050, achieved mostly through increased efficiency, reduced energy demand and electrification in conjunction with complete decarbonisation of the power sector.

Source: IFA FTP R2DS scenario assessed in IPCC SR1 5 2018

STATUS OF DECARBONISATION

Building emissions per capita

(incl. indirect emissions) (tCO₂/capita)



Trend (2013-2018)

compared to other G20 countries4

Rating trend (2013-2018) ____ medium Rating current level (2018) very high

Rating of building emissions

Source: own evaluation

Residential buildings: energy use per m² (GJ)

0.91 G20 range

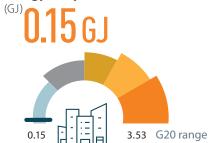
Data: year different per country | Source: ACEEE 2018

Source: Enerdata 2019; World Bank 2019

Data for 2018

Building-related emissions per capita are only a third of the G20 average. In contrast to the G20 average, Mexico has managed to reduce the level by 6% (2013-2018).

Commercial and public buildings: energy use per m²



Data: year different per country | Source: ACEEE 2018

Building emissions are largely driven by how much energy is used in heating, cooling, lighting, household appliances, etc. Mexico has the lowest level of energy use per m² among G20 countries.

Near-zero energy new buildings



In 2017, the government presented a roadmap for reducing energy consumption by 35% in the building sector through energy efficiency measures, and for constructing only near-zero energy buildings by 2050 (2025 would be 1.5°C compatible). The roadmap also envisages that by 2030 all states will enforce an energy building code.

Source: own evaluation

Renovation of existing buildings



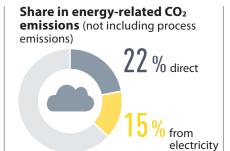
Mexico does not have an energy retrofitting strategy for existing buildings. A 2019 energy efficiency programme covers only public buildings.

MITIGATION INDUSTRY SECTOR



MEXICO

Industry-related emissions make up more than a third of CO₂ emissions in Mexico. Emissions per industrial output are below the G20 average, but total industrial emissions do not show the required decline.



Data for 2018 | Source: Enerdata 2019

Global industrial CO₂ emissions need to be reduced by 65-90% from 2010 levels by 2050.



Source: IPCC SR1.5 2018

STATUS OF DECARBONISATION

Industry emissions intensity¹²

(tCO₂e/US\$2015 GVA)



/ -4.4%



-10.2%

Trend (2011-2016)

Rating of emissions intensity compared to other G20 countries4



Source: own evaluation

Carbon intensity of cement production¹³





Data for 2015 | Source: CAT 2019

Carbon intensity of steel production13

(kgCO₂/tonne product)



Data for 2015 | Source: CAT 2019

When comparing industrial emissions with the gross value added (GVA) from the industry sector, Mexico performs comparatively well within the G20.

Steel production and steelmaking are significant GHG emission sources, and are challenging to decarbonise. Mexico's steel industry is significantly less emission intensive than the world average.

Energy efficiency



According to the IEA, less than 25% of energy use in industry is covered by mandatory energy efficiency requirements (as of 2017). Although Mexico's 2014-2018 Energy Efficiency Program aims to improve energy efficiency, there are few instruments for achieving this objective.



There is no update for the expired Energy Efficiency Program.



MITIGATION LAND USE



MEXICO

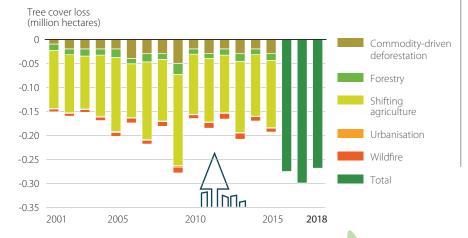


In order to stay within the 1.5°C limit, Mexico needs to make the land use and forest sector a net sink of emissions, eg by halting the expansion of farmland, enhancing conservation, preventing wildfires, and creating new forests.

Global deforestation needs to be halted and changed to net CO₂ removals by around 2030.

Source: IPCC SR1.5 2018

Gross tree cover loss by dominant driver14



(Net) zero deforestation



The forestry sector is a key area of Mexico's Climate Change law. Mexico's 2017-2030 LULUCF strategy sets out an aim to reach net zero deforestation by 2030 (zero deforestation by the 2020s would be 1.5°C compatible).



Avocado plantations, subsidised by the government, have recently been driving deforestation in Mexico. The budget for fire brigades has been halved.

Source: own evaluation

Source: Global Forest Watch 2019 Note: 2000 tree cover extent | >30% tree canopy | these estimates do not take tree cover gain into account

From 2001 to 2018, Mexico lost 3.67Mha of tree cover, equivalent to a 6.9% reduction since 2000. This does not take tree-cover gain into account.

MITIGATION AGRICULTURE

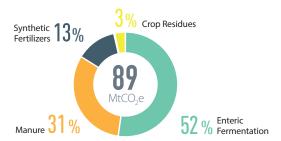


Mexico's agricultural emissions come mainly from digestive processes in animals, livestock manure, and the use of synthetic fertilizers. A 1.5°C pathway requires dietary shifts, increased organic farming, and less fertilizer use.

Global methane emissions (mainly enteric fermentation) need to decline by 10% by 2030 and by 35% by 2050 (from 2010 levels). Nitrous oxide emissions (mainly from fertilzers and manure) need to be reduced by 10% by 2030 and by 20% by 2050.

Source: IPCC SR1.5 2018

GHG emissions from agriculture (not including energy)



In Mexico, the largest sources of GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), livestock manure and, to a lesser extent, the use of synthetic fertilizers. A shift to organic farming, more efficient use of fertilizers, and diet changes could help reduce emissions.

Data for 2016 | Source: FAOSTAT 2019

ADAPTATION

MEXICO

- → Mexico is vulnerable to climate change and adaptation actions are needed.
- → On average, 126 fatalities and losses amounting to almost US\$3 billion occur yearly due to extreme weather events.
- → With global warming, society and its supporting sectors are increasingly exposed to severe climate events such as droughts and extreme heat.
- → With a 3°C warming, Mexico would experience around 110 days per year when temperatures are above 35°C.



ADAPTATION POLICIES

Nationally-determined contribution: Adaptation						
Targets Not mentioned						
Actions Specified (sectors: water, biodiversity and ecosystems, forestry, agriculture, health, infrastructure)						

Source: UNFCCC, NDC Mexico 2016

National adaptation strategies

			Fields of action (sectors)												
Document name	Publication year	Agriculture	Biodiversity	Coastal areas & fishing	Education & research	Energy & industry	Finance & insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism	Water	M&E process (reporting frequency)
Mexico's National Strategy on Climate Change (ENCC)	2013	х	х	х	х	х	х	х	х	х				х	The Secretariat of Environment and Natural Resources, with the participation of the Inter-Secretariat Commission on Climate Change will review every six years

Source: own research



MEXICO

ADAPTATION NEEDS

Climate Risk Index for 1998-2017

Impacts of extreme weather events in terms of fatalities and economic losses that occured

Global Climate Risk Index 2019 | All numbers are averages (1998-2017)



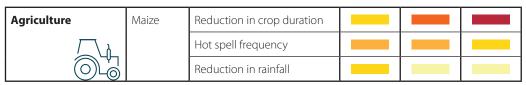
Source: Germanwatch 2018

Mexico has already been struck by extreme weather events such as storms, strong rains and floods. As highlighted by the numbers from the Climate Risk Index, such extreme weather events result in fatalities and economic losses. Climate change is expected to worsen the intensity, frequency and impacts of such events.

Exposure to future impacts at 1.5°C, 2°C and 3°C

		1.5°C	2°C	3°C
Water	% of area with increase in water scarcity			
	% of time in drought conditions			
Heat & Health	Heatwave frequency			
	Days above 35°C			

Source: own research



Source: Based on Arnell et al 2019

Overall, with rising temperatures, all sectors are adversely affected. In the water sector, water scarcity and time spent in drought conditions increase significantly. There is a dramatic increase in the frequency of heat waves together with an increase in the number of days with temperatures above 35°C.

Impact ranking scale

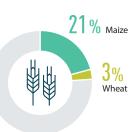


Blank cells signify that there is no data available

National crop production

(share in % of total production quantity in tonnes)

Rest **76**%



Maize represents the most prominent crop in Mexico out of the four crops analysed. Whereas maize experiences an increase in rainfall, it is also affected by an increase in hot spell frequency and a drastic reduction in crop duration.

Data for 2017 | Source: FAOSTAT 2019

FINANCE

MEXICO



Mexico spent US\$2.3 billion on fossil fuel subsidies in 2017, almost completely on petroleum. The country's carbon pricing scheme generates only a fraction of this amount in revenues.

Nationally-determined contribution: Finance						
Conditionality	The 25% reduction commitment could change to a 40% commitment (-36% GHG, -70% black carbon) conditional on financial support, among other measures					
Investment needs	Not specified					
Actions	Not mentioned					
International market mechanisms	Mexico's unconditional NDC commitment will be met regardless of such mechanisms, although these would assist cost-effective implementation (conditional target relies on market mechanisms)					

Investment into green energy and infrastructure needs to outweigh fossil fuel investments by 2025.



Source: IPCC SR1.5 2018

Source: UNFCCC, NDC Mexico 2016

Financial policy and regulation supporting a brown to green transition

Through policy and regulation governments can overcome challenges to mobilising green finance, including: real and perceived risks, insufficient returns on investment, capacity and information gaps.

Category	Instruments	Objective	Under discussion/ implementation	Not identified
Green Financial Principles	N/A	This indicates political will and awareness of climate change impacts, showing where there is a general discussion about the need for aligning prudential and climate change objectives in the national financial architecture.		

			Mandatory	Voluntary	Under discussion	Not identified
Enhanced super- visory review,	Climate risk disclosure requirements	Disclose the climate-related risks to which financial institutions are exposed				x
risk disclosure and market discipline	Climate-related risk assessment and climate stress-test	Evaluate the resilience of the financial sector to climate shocks				х
Enhanced capital and liquidity	Liquidity instruments	Mitigate and prevent market illiquidity and maturity mismatch				x
requirements	Lending limits	Limit the concentration of carbon-intensive exposures				х
		Incentivise low carbon-intensive exposures				х
	Differentiated Reserve Requirements	Limit misaligned incentives and canalise credit to green sectors				x

Source: own research

Mexico is a founding member of the Network for Greening the Financial System (NGFS) and has led efforts to establish inclusive green growth as a priority area for the G20 development agenda under the Mexican G20 Presidency in 2012 (a theme which led to the launch of the



GreenInvest initiative in 2015). Domestically, the ABM (Mexican Banking Association) has led a voluntary industry approach to sustainable banking in Mexico through the development of a 'Sustainability Protocol', which has been signed by 19 banks, while Mexico's national stock exchange, Bolsa Mexicana, committed in 2016 to create voluntary ESG (environmental, social and governance) reporting guidance for issuers.

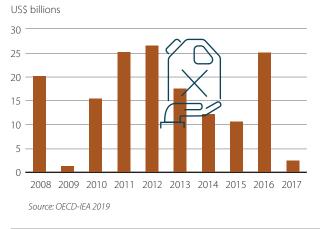
FINANCE

MEXICO

Fiscal policy levers

Fiscal policy levers raise public revenues and direct public resources. Critically, they can shift investment decisions and consumer behaviour towards low-carbon, climate-resilient activities by reflecting externalities in prices.

Fossil fuel subsidies



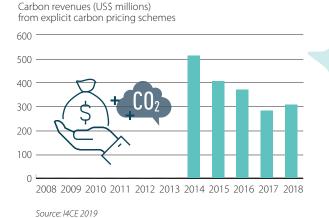
Subsidies by fuel type



Data for 2017 | Source: OECD-IEA 2019

In 2017, Mexico's fossil fuel subsidies totalled US\$2.3bn (compared to US\$20bn in 2008, and fluctuating greatly over the last decade). All of the subsidies quantified were for consumption of fossil fuels, and almost all were for petroleum. The largest subsidy is general excise duty reductions for diesel passenger transportation and for machinery, resulting in US\$1.3bn and US\$0.5bn of support respectively. Subsidies to (fossil fuel-dominated) electricity are not included here.

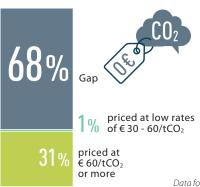
Carbon revenues



In 2014, Mexico introduced a national carbon tax, which generated US\$306 million in revenues in 2018. This covers 46% of domestic emissions, with emissions priced at US\$2/tCO₂, but excludes natural gas products. A draft regulation was released for establishing a pilot ETS (emissions trading scheme) aiming to cover the power, oil and gas, and industrial sectors, but only covers CO₂e emissions and excludes the transport sector. The start of the pilot is planned for 2020 under a voluntary scheme.

Carbon pricing gap¹⁵

% of energy-related CO₂ emissions



Only 32% of Mexico's CO_2 emissions are priced at EUR30 or higher (the low-end benchmark), creating a carbon pricing gap of 68%. This gap is lower than the G20 average of 71%. The price covers not only explicit carbon taxes but also specific taxes on energy use and the price of tradable emission permits.

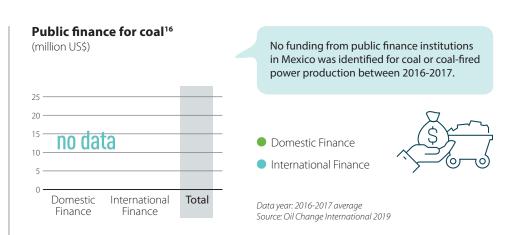
Data for 2015 | Source: OECD 2018

FINANCE

MEXICO

Public finance

Governments steer investments through their public finance institutions including via development banks, both at home and overseas, and green investment banks. Developed G20 countries also have an obligation to provide finance to developing countries and public sources are a key aspect of these obligations under the UNFCCC.



Commitments to restrict public finance to coal and coal-fired power¹⁷

MDB level	National development agencies and banks	Domestic export credit agencies	Export credit restriction in OECD	Comment
_	_	_	X	Mexico is part of the OECD agreement for export credit agencies to restrict coal financing.
X yes	no	not applica	ble	Source: own research

Provision of international public support18

Mexico is not listed in Annex II of the UNFCCC and is therefore not formally obliged to provide climate finance. It has nevertheless provided international public finance to the Green Climate Fund (GCF) and the Global Environment Facility (GEF) Trust Fund focal area climate change mitigation. While Mexico may channel international public finance towards climate change via multilateral and other development banks, it has not been included in this report. While Mexico did not voluntarily pledge funds to the Green Climate Fund in October 2019 to match its 2014 contributions of US\$10 million, it might consider contributions later in the year.

Obligation to provide climate finance under UNFCCC





Mitigation

0%



Cross-

cuttina

0%

Other

0%

Theme of support

Adaptation

0%

Bilateral climate finance contributions

Multilateral climate

Source: Country reporting to UNFCCC

Annual average contribution (mn US\$, 2015-2016)

Annual average

contribution

(mn US\$, 2015-2016)

The	me of suppo	ort
Adaptation	Mitigation	Cross- cutting
0%	0%	0%

finance contributions

See Technical Note for multilateral climate funds included and method to attribute amounts to countries

Source: Country reporting to UNFCCC

Core/General **Contributions**

Annual average contribution (mn US\$, 2015-2016)

Source: Country reporting to UNFCCC

ENDNOTES



- 'Land use' emissions is used here to refer to land-use, land use change and forestry (LULUCF). The Climate Action Tracker (CAT) derives historical LULUCF emissions from the UNFCCC Common Reporting Format (CRF) reporting tables data converted to the categories from the IPCC 1996 guidelines, in particular separating Agriculture from Land use, land-use change and forestry (LULUCF), which under the new IPCC 2006 Guidelines is integrated into Agriculture, Forestry, and Other Land Use (AFOLU).
- 2) The 1.5°C fair share ranges for 2030 and 2050 are drawn from the CAT, which compiles a wide range of perspectives on what is considered fair, including considerations such as responsibility, capability, and equality. Countries with 1.5°C fair-share ranges reaching below zero, particularly between 2030 and 2050, are expected to achieve such strong reductions by domestic emissions reductions, supplemented by contributions to global emissions-reduction efforts via, for example, international finance. On a global scale, negative emission technologies are expected to play a role from the 2030s onwards, compensating for remaining positive emissions.

The CAT's evaluation of NDCs shows the resulting temperature outcomes if all other governments were to put forward emissions reduction commitments with the same relative ambition level.

- The 2030 projections of GHG emissions are from the CAT's June 2019 update and are based on implemented policies, expected economic growth or trends in activity and energy consumption.
- The CAT methodology does not consider GHG emissions from LULUCF due to the large degree of uncertainty inherent in this type of data, and alsoto ensure consistency and comparability across countries.
- 3) See the Brown to Green 2019 Technical Note for the sources used for this assessment.
- 4) The Decarbonisation Ratings assess the relative performance across the G20. A high scoring reflects a relatively good efforts from a climate protection perspective but is not necessarily 1.5°C compatible. The ratings assess both the 'current level' and 'recent developments' to take account of the different starting points of different G20 countries. The 'recent developments' ratings compare developments over the last five available years (often 2013 to 2018).
- 5) The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the Special Report on 1.5°C of the International Panel on Climate Change (2018), and the Climate Action Tracker (2016): 'The ten most important short-term steps to limit warming to 1.5°C'. The table below displays the criteria used to assess a country's policy performance. See the Brown to Green Report 2019 Technical Note for the sources used for this assessment.

On endnote 5)	low	— medium	high	frontrunner
Renewable energy in power sector	No policy to increase the share of renewables	Some policies	Policies and longer-term strategy/ target to significantly increase the share of renewables	Short-term policies + long-term strategy for 100% renewables in the power sector by 2050 in place
Coal phase-out in power sector	No target or policy in place for reducing coal	Some policies	Policies + coal phase-out decided	Policies + coal phase-out date before 2030 (OECD and EU28) or 2040 (rest of the world)
Phase out fossil fuel cars	No policy for reducing emissions from light-duty vehicles	Some policies (e.g. energy/ emissions performance standards or bonus/malus support)	Policies + national target to phase out fossil fuel light-duty vehicles	Policies + ban on new fossil- based light-duty vehicles by 2035 worldwide
Phase out fossil fuel heavy-duty vehicles	No policy	Some policies (e.g. energy/ emissions performance standards or support)	Policies + strategy to reduce absolute emissions from freight transport	Policies + innovation strategy to phase out emissions from freight transport by 2050
Modal shift in (ground) transport	No policies	Some policies (e.g. support programmes to shift to rail or non-motorised transport)	Policies+ longer-term strategy	Policies + longer-term strategy consistent with 1.5°C pathway
Near zero-energy new buildings	No policies	Some policies (e.g. building codes, standards or fiscal/financial incentives for lowemissions options)	Policies + national strategy for near zero-energy new buildings	Policies + national strategy for all new buildings to be near zero- energy by 2020 (OECD countries) or 2025 (non-OECD countries)
Retrofitting exis- ting buildings	No policies	Some policies (e.g. building codes, standards or fiscal/financial incentives for lowemissions options)	Policies + retrofitting strategy	Policies + strategy to achieve deep renovation rates of 5% annually (OECD) or 3% (non- OECD) by 2020
Energy efficiency in industry	No policies	Mandatory energy efficiency policies cover more than 26-50% of industrial energy use	Mandatory energy efficiency policies cover 51–100% of industrial energy use	Policies + strategy to reduce industrial emissions by 75%–90% from 2010 levels by 2050
(Net) zero deforestation	No policy or incentive to reduce deforestation in place	Some policies (e.g. incentives to reduce deforestation or support schemes for afforestation /reforestation in place)	Policies + national target for reaching net zero deforestation	Policies + national target for reaching zero deforestation by 2020s or for increasing forest coverage

ENDNOTES (continued)



- 6) The 1.5°C benchmarks are based on the Special Report on 1.5°C of the International Panel on Climate Change (2018). See the Brown to Green 2019 Technical Note for the specific sources used for this assessment.
- 7) Total primary energy supply data displayed in this Country Profile does not include non-energy use values. Solid fuel biomass in residential use has negative environmental and social impacts and is shown in the category 'other'.
- Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.
- 9) The category 'electricity and heat' covers CO₂ emissions from power generation and from waste heat generated in the power sector. The category 'other energy use' covers energy-related CO₂ emissions from extracting and processing fossil fuels (e.g. drying lignite).
- 10) This indicator shows transport emissions per capita, not including aviation emissions.
- 11) This indicator adds up emissions from domestic aviation and emissions from international aviation bunkers in the respective country. Emissions by aircrafts in the higher atmosphere lead to a contribution to climate change greater than emissions from burning fossil fuels. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.
- 12) This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.

- 13) This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).
- 14) This indicator covers only gross tree-cover loss and does not take tree-cover gain into account. It is thus not possible to deduce from this indicator the climate impact of the forest sector. The definition of 'forest' used for this indicator is also not identical with the definition used for the indicator on page 3.
- 15) 'Effective carbon rates' are the total price that applies to CO_2 emissions, and are made up of carbon taxes, specific taxes on energy use and the price of tradable emission permits. The carbon pricing gap is based on 2015 energy taxes and is therefore likely to be an underestimate, as taxation has tended to increase in countries over time.
- 16) The database used to estimate public finance for coal is a bottom-up database, based on information that is accessible through various online sources, and is therefore incomplete. For more information, see to the Brown to Green 2019 Technical Note.
- 17) See the Brown to Green 2019 Technical Note for the sources used for this assessment.
- 18) Climate finance contributions are sourced from Biennial Party reporting to the UNFCCC. Refer to the Brown to Green Report 2019 Technical Note for more detail.

For more detail on the sources and methodologies behind the calculation of the indicators displayed, please download the Technical Note at: http://www.climate-transparency.org/g20-climate-performance/g20report2019

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Contact point in Mexico: Jorge Villarreal Padilla Iniciativa Climática de México jorge.villarreal@iniciativaclimatica.org

Mariana Gutiérrez Grados Iniciativa Climática de México mariana.gutierrez@iniciativaclimatica.org

