

BROWN TO GREEN: G20 TRANSITION TO A LOW CARBON ECONOMY

Mexico

This country profile assesses the Mexico's past, present and indications of future performance towards a low-carbon economy by evaluating emissions, decarbonisation, climate policy performance and climate finance. The profile summarises the respective findings from, amongst others, the Climate Change Performance Index (CCPI, operated by Germanwatch and Climate Action Network Europe), the Climate Action Tracker (CAT, operated by Climate Analytics, NewClimate Institute, Ecofys and Potsdam Institute for Climate Impact Research), and analyses from the Overseas Development Institute (ODI).



GREENHOUSE GAS (GHG) EMISSIONS

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1000 900 800 Total emissions (MtCO,e/a) 700 capita (tCO./capita) 600 500 400 Emissions per 300 200 100 0 2030 Historic emissions Energy-related Energy-related (excluding forestry) CO₂ emissions CO, emissions per capita G20 average of energy-related Historic forestry Current policy emissions projections CO, emissions per capita (excluding forestry) emissions/removals **CCPI evaluation of emissions level and trend** Level Weak trend very pool poor medium good very good Strong trend

Mexico's GHG emissions have continuously increased in recent decades, up to 713 MtCO₂e in 2012, and are likely to grow further by 2030. Emissions from land use, land-use change and forestry (LULUCF) declined since 1990 to 44 MtCO₂e in 2012. Mexico's energy-related CO₂ emissions have grown similarly to total GHG emissions. Energy-related CO₂ per capita emissions have increased to nearly 4 tCO₂, but remain below the G20 average. The CCPI indicates a relatively good performance by Mexico, but the five-year trend indicates a worsening development.



Source: Annex I countries: UNFCCC (2015); Non-Annex I countries: IEA (2014) and CAT (2015)

Sources: Past energy related emissions from the Climate Change Performance Index (CCPI); past non-energy and future emissions projections from the Climate Action Tracker (CAT). CCPI calculations are primary based on the most recent IEA data; CAT calculations are based on national policies and country communications.



DECARBONISATION

Energy intensity of the economy



The energy intensity of Mexico's economy (TPES/GDP) has slowly decline over the years. Starting one third below the G20 average, Mexico's energy intensity went down to around 5 TJ per million US\$ in 2000 and has remained relatively stable at that level ever since. The CCPI ranked Mexico's level of energy intensity as good, with a positive trend.



Carbon intensity of the energy sector





Share of coal in Total Primary Energy Supply (TPES)



At 5%, the share of coal in Mexico's primary energy supply is low, compared to other G20 countries. Future projections expect the coal share to drop even further until 2030.



Source: own evaluation

Brown to green: G20 transition to a low carbon economy

Renewable energy in TPES and electricity sector



Electricity demand per capita

The electricity demand in Mexico increased from a very low level in 1990 to nearly 2000 kWh per capita in 2012. According to future projections, it is expected that this growth will continue in the coming years.

Emissions intensity of the electricity sector

After slightly exceeding the G20 average up to 2003, Mexico's electricity emissions intensity dropped to a low in 2008. Since then, emissions intensity has been increasing again towards the G20 average.



CLIMATE POLICY PERFORMANCE

Checklist of the climate policy framework

Low emissions development plan for 2050*	\bigcirc
2050 GHG emissions target	S
Building codes, standards and incentives for low-emissions options	Ø
Support scheme for renewables in the power sector	Ø
Emissions performance standards for cars	Ø
Emissions Trading Scheme (ETS)	\bigotimes
Carbon tax	\bigcirc

* understood as decarbonisation plans and not specifically as the plans called for in the Paris Agreement

Source: Climate Policy Database, 2016



Climate policy evaluation by experts

Internationally, Mexico was evaluated as a good performer until CCPI's 2011 evaluation, when its performance declined. Experts say energy policies are not aligned with the emissions reduction targets set by the Climate Change Law and the INDC. While Mexico strongly supports the fossil fuel sector, the CCPI still rates it well relative to other countries.

The CCPI evaluates a country's performance in national and international climate policy through feedback from national energy and climate experts.





Compatibility of national climate targets (INDCs) with a 2°C scenario

Mexico's Intended Nationally Determined Contribution (INDC) was submitted on 28 March 2015 and proposes to unconditionally reduce its greenhouse gases (GHGs) emissions and black carbon by 25% below baseline levels in 2030, equivalent to an increase of 35.8% above 1990 levels (including Land Use and Land Use Change and Forestry – LULUCF emissions).

Based on this target, the Climate Action Tracker rates Mexico as "medium" since Mexico's ambition level is not yet consistent with limiting global warming to below 2° C, and would require other countries to make deeper reductions and comparably greater efforts.

Current policies imply emissions levels of 8–17% above the INDC target in 2030. Mexico has shown strong progress in policy planning and institution building, including the adoption of its General Law on Climate Change (LGCC in Spanish) in 2012. This was the first law on climate change in a developing country, under which Mexico aims to reduce its emissions by 50% from 2000 levels by 2050. This target is consistent with the INDC objective.

FINANCING THE TRANSITION

*Adapted from RECAI and re-classified in 3 categories

**Taken from RECAI issue of May 2016



(low, medium, high) for comparison purposes with Allianz Monitor.

Climate Transparency rates Mexico's investment attractiveness as low to medium, due to the historical state monopoly in the energy sector and no substantive support schemes for renewables uptake. However, the new "pro-market" government has begun an overhaul of the energy sector. The 2014 constitutional reforms have opened up the electricity sector to private developers who have been awarded contracts worth 1,720 MW of renewable power.

Sources: Allianz Energy and Climate Monitor and RECAI reports

The Allianz Energy & Climate Monitor ranks G20 member states on their relative fitness as potential investment destinations for building low-carbon electricity infrastructure. The investment attractiveness of a country is assessed through four categories: Policy adequacy, Policy reliability of sustained support, Market absorption capacity and the National investment conditions. The Renewable Energy Country Attractiveness Index (RECAI) produces score and rankings for countries' attractiveness based on Macro drivers, Energy market drivers and Technology-specific drivers which together compress a set of 5 drivers, 16 parameters and over 50 datasets.

Historical investments in renewable energy and investment gap

This section shows Mexico's current investments in the overall power sector (including distribution and transmission) as well as in renewable energy expressed as the share of the total annual investments needed to be in line with a 2°C compatible trajectory



(2) WEIO (2014) compares annual average investments from 2000 to 2013 with average annual investments needed from 2015 to 2030 under a 2°C scenario

Carbon pricing mechanisms

Emissions Trading Schemes (ETS)

An ETS caps the total level of GHG emissions and allows industries to trade allowances based on their marginal abatement cost. By creating a supply and demand for allowances, an ETS establishes a market price for GHG emissions.

Carbon Tax

A Carbon tax directly sets a price on carbon by defining a tax rate on GHG emissions or – more commonly - on the carbon content of fossil fuels. Unlike an ETS, a carbon tax is a price-based instrument that pre-defines the carbon price, but not the emissions reduction outcome of a carbon tax.

Sources: World Bank and Ecofys, 2016; other national sources

In 2014, Mexico introduced a national carbon tax that, covered 46% of the country's emissions, and generated almost US\$ 1 billion in revenue by mid-2016. The existing carbon tax, in combination with other climate initiatives such as a national emissions registry and the Clean Energy Certificates (CEC) scheme, are expected to enable a carbon market in 2018.



Fossil fuel subsidies

Despite productivity decreases in ageing oil fields since 2005, Mexico is one of the world's largest producers of oil and gas. In 2013, Mexico initiated an energy reform to reduce oil industry restrictions to raise production and attract international players. Most of Mexico's fossil fuel subsidies are consumption subsidies, although some production subsidies intended to reduce operating costs for new companies and spur a competitive market for oil and gas, currently exist (e.g. 100% deduction of exploration expenditures). In 2015, the government began a new fiscal regime for the oil and gas industry to create a level playing field between the monopoly producer, Petroleos Mexicanos (Pemex), and private players by reducing Pemex tax and royalty payments.



Source: ODI, 2015

*The indicators above refer only to subsidies for fossil fuel production, and include direct spending (e.g. government budget expenditure on infrastructure that specifically benefits fossil fuels), tax expenditure (e.g. tax deductions for investment in drilling and mining equipment) and other support mechanisms (e.g. capacity mechanisms).

Public climate finance

As a developing country, Mexico is not obliged to provide climate finance. It has nevertheless pledged \$10 million to the GCF. Mexico has also created a national climate fund.