

BROWN TO GREEN: 2019

THE G20 TRANSITION TOWARDS A NET-ZERO EMISSIONS ECONOMY

TURKEY





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

But total GHG emissions (excluding land use) have more than doubled since 1990.

Greenhouse gas (GHG) emissions (incl. land use) per capita¹ (tCO₂e/capita)

Data for 2016

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











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

Turkey's fair-share range is below 357 MtCO₂e by 2030 and below 218 MtCO₂e by 2050. Under Turkey's 2030 NDC target, emissions would only be limited to 999 MtCO₂e. 1.5°C-compatibility can be achieved via strong domestic emissions reductions, supplemented with contributions to global emissions-reduction efforts. All figures are drawn from the Climate Action Tracker and exclude land use.

1.5°C compatible pathway²

(MtCO₂e/year)

1,000

NDC

800

503 MtCO₂e

357

MtCO₂e

200

2016

2030

2050

Source: CAT 2019

Recent developments³



In May 2019, the Ministry of Energy and Natural Resources announced it would offer 500 coal mines to potential investors in public tenders.



Turkey has not ratified the Paris Agreement, neither has it submitted its NDC.



The 11th Development Plan from July 2019 raised the 2023 target for the share of renewables in the power mix from 30% to 38.8%.

opportunities for enhancing climate ambition³

Turkey has only short-term climate targets reflected in its Climate Change Action Plan 2011-2023

Ratify the Paris Agreement and adopt a 2050 lowemission strategy to prevent lock-in of sectors and maintain global warming at 1.5°C. Turkey still generates 38% of electricity from coal and is building new coal plants

→ Decide to phase out coal, at the latest by 2030.



Between 2013-2018 transport emissions per capita in Turkey have risen by 38%, more than in any other G20 country

Establish energy efficiency standards for light-duty vehicles (LDVs) and heavy-duty vehicles, and ban new fossil-fuel based LDVs by 2025.

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

TURKEY -SOCIO-ECONOMIC CONTEXT



Human Development Index

The Human Development Index reflects life expectancy, level of education, and per capita income. Turkey ranks high.

Data for 2017 | Source: UNDP 2018



Gross Domestic Product (GDP) per capita

(PPP US\$ const. 2018, international)

28,447

Data for 2018 | Source: World Bank 2019

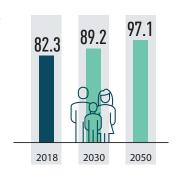


Population projections

(millions)

Turkey's population is expected to increase by about 17% by 2050.

Source: World Bank 2019



Death through ambient air pollution

(total ambient air pollution attributable deaths)

Almost 37,000 people die in Turkey every year as a result of outdoor air pollution, due to stroke, heart disease, lung cancer and chronic respiratory diseases. Compared to total population, this in the middle range of the G20.

Data for 2016 Source: World Health Organization 2018



1.1 G20 range

0.5 Turkey

0.1 Ambient air pollution attributable death rate

Ambient air pollution attributable death rate per 1,000 population per year, age standardised

JUST TRANSITION³

Since 2014, Turkey has placed an emphasis on poverty reduction and social inclusion through strengthening national green economy initiatives such as Project Decent Work in the Green Economy, which established the basis to define 'Inclusive and Robust Growth' as the G20's primary goal during Turkey's G20 presidency in 2015.

Turkey's 2015-2018 Industry Strategy Plan mentions that 'green jobs' in the renewable energy sector may become an engine of growth. In contrast, the recently published 11th Development Plan 2019-2023 does not refer to greening the labour force, but contrarily, establishes the specific goal of "increasing employment and decreasing import dependence by utilizing the publicly owned lignite reserves to produce

electricity". Consequently, Turkey does not seem to have a concrete and consistent goal of transition.

Turkey is still dependent on fossil fuels and imports almost all of the natural gas and oil that it uses. The Development Plan establishes a 38% renewable electricity target by 2030 but the Turkish government also aims to create a regional gas hub that will deliver gas from the Caspian to Turkey and the European Union.

The energy transition in Turkey has been framed solely as an engineering problem with technological solutions, while no public debates have addressed spatial and social considerations, energy equity or energy justice.

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

TURKEY

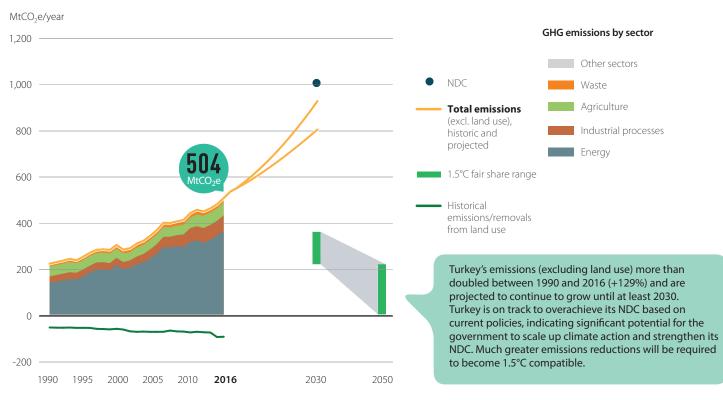


Turkey's GHG emissions have increased by 129% (1990-2016) and the government's climate target for 2030 (-21% from business as usual) is not in line with a 1.5°C pathway.

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



Source: PRIMAP 2018: CAT 2019

Nationally-determined contribution (NDC): Mitigation

Targets	Up to 21% reduction in GHG emissions from business-as-usual level by 2030
Actions	Actions specified (sectors: energy, industry, transport, buildings, agriculture, waste, forestry)

Turkey's ratification of the Paris Agreement and thus the submission of its definitive NDC are still pending (table presents its INDC).

Source: UNFCCC, NDC of respective country

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

Status	No information available
2050 target	_
Interim steps	-
Sectoral targets	-

Climate action tracker (CAT) evaluation of NDC²



Source: CAT 2019

Source: UNFCCC, LTS of respective country

MITIGATION ENERGY



TURKEY

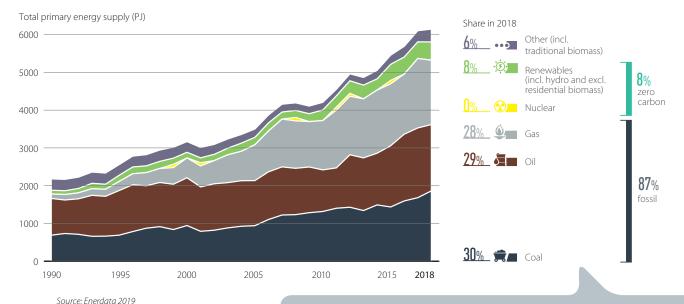
0

Turkey's energy use per capita and the energy intensity of the economy are both below the G20 average, although energy use in particular has significantly increased in the past five years. This trend needs to be reversed to be compatible with a 1.5°C pathway.

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.

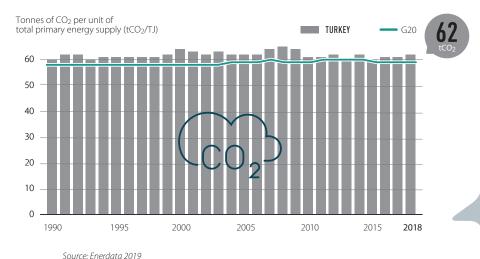
Source: IPCC SR1.5 2018

Energy mix7

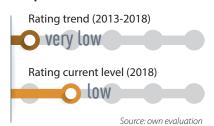


This graph shows the fuel mix for all energy supply, including energy used for electricity generation, heating, cooking, and transport fuels. Fossil fuels (oil, coal and gas) still make up 87% of Turkey's energy mix, which is above the G20 average (82%). Growing energy supply has mainly been covered by increased use of fossil fuels, but renewables are picking up speed.

Carbon intensity of the energy sector



Rating of carbon intensity compared to other G20 countries⁴



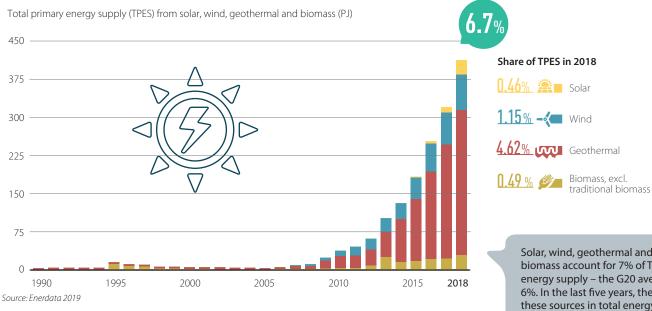
Carbon intensity shows how much CO₂ is emitted per unit of energy supply. The carbon intensity of Turkey's energy mix has remained at around 62tCO₂/TJ with only minor ups and downs, and is slightly above the G20 average. But in contrast to the G20, Turkey's carbon intensity has been increasing in the past five years (+2.9%, 2013-2018).

MITIGATION ENERGY



TURKEY

Solar, wind, geothermal and biomass development8



Rating of share in TPES compared to other G20 countries⁴



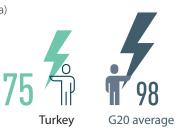
Rating current level (2018)

medium

Solar, wind, geothermal and modern biomass account for 7% of Turkey's energy supply – the G20 average is 6%. In the last five years, the share of these sources in total energy supply has increased by around 257%, much more than the G20 average (+29% 2013-2018). Geothermal energy makes up the largest proportion.

Energy supply per capita

Total primary energy supply per capita (GJ/capita)



The level of energy supply per capita is closely related to economic development, climatic conditions and the price of energy.

Energy supply per capita in Turkey (75 GJ/capita) is well below the G20 average, but is increasing much more (+19%, 2013-2018) than in any other G20 country.

Trend (2013-2018)





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

Rating of energy supply per capita compared to other G20 countries⁴



MITIGATION ENERGY



TURKEY



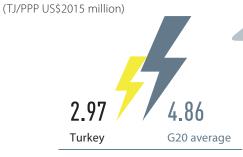
Turkey's economy is slightly less energy intensive (-16%) than the G20 average, but energy supply per capita is well below the G20 average and has decreased further. Energy-related CO₂ emissions peaked in 2014.

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



(2013-2018)

Trend

<u></u> -12%

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

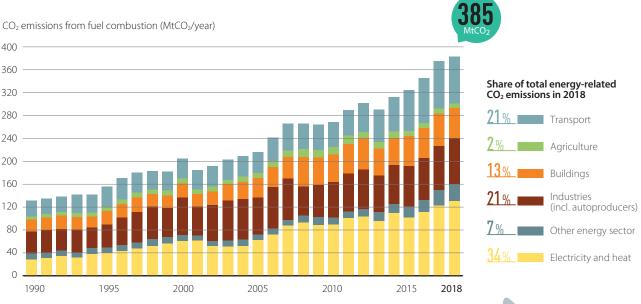
This indicator quantifies how much energy is used for each unit of GDP. This is closely related to the level of industrialisation, efficiency achievements, climatic conditions or geography. Turkey's energy intensity is the $2^{\rm nd}$ lowest in the G20, but is still increasing (1%, 2013-2018), in contrast to the decreasing G20 average.

Rating of energy intensity compared to other G20 countries⁴



Source: own evaluation

Energy-related CO₂ emissions⁹



The largest driver of overall GHG emissions are CO_2 emissions from fuel combustion. In Turkey, they have significantly increased in the last decade. At 34%, the electricity and heat sector is the largest contributor, followed by industries and transport, at 21% each.

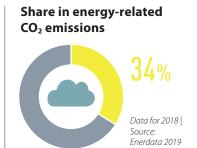
Source: Enerdata 2019

MITIGATION POWER SECTOR



TURKEY

The use of renewable power is growing, but Turkey still produces 38% of electricity from coal and aims to increase coal-fired installed capacity to 30 GW by 2023. The country needs to phase out coal by 2030 to be in line with a 1.5°C limit.

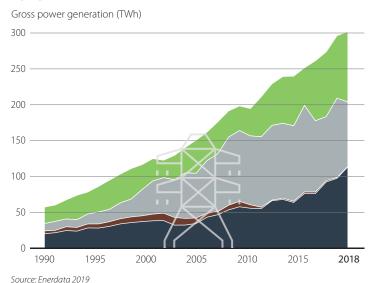


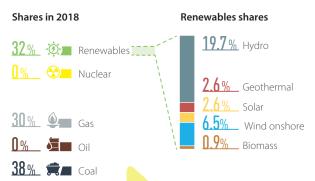
Coal must be phased out in the EU/OECD no later than 2030, in the rest of the world no later than 2040. Electricity generation needs to be decarbonised before 2050, with renewable energy the most promising option.5

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

STATUS OF DECARBONISATION

Power mix



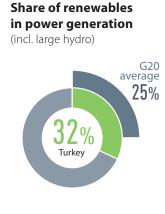


Turkey is increasingly producing power from renewables, which make up almost a third of the power mix (the G20 average is 25%). Large hydropower having the biggest share (20%), followed by wind energy (7%). However, the share of coal in the mix has also significantly increased. Fossil fuels make up 68% of the power mix (the G20 average is 63%).

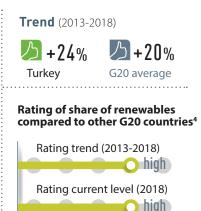
Trend (2013-2018) **Emissions intensity** of the power sector (gCO₂/kWh) 458 Rating of emissions intensity compared to other G20 countries4 Rating trend (2013-2018) o very low Rating current level (2018) G20 average Turkey low Data for 2018 | Source: Enerdata 2019

For each kilowatt hour of electricity, 481 gCO₂ are emitted in Turkey. This is slightly above the G20 average, but the emission intensity of Turkey's power sector is still increasing (+8%, 2013-2018), reflecting the growing share of coal in electricity generation.

Source: own evaluation







MITIGATION POWER SECTOR



TURKEY

POLICIES⁵

Renewable energy in the power sector



Turkey aims to increase the share of renewables to 38% of total installed capacity by 2023 but has no long-term strategy for renewable energy. The production of renewable energy is mostly promoted through a feed-in tariff, pre-licence tenders and capacity auctions.

Source: own evaluation

Coal phase-out in the power sector



Turkey aims to increase its coal-fired installed capacity to 30 GW by 2023; currently the figure is around 20 GW. In May 2019, the Ministry of Energy and Natural Resources announced it would offer 500 coal mines to potential investors in public tenders.

Source: own evaluation

MITIGATION TRANSPORT SECTOR



In Turkey, per capita emissions from transport are around the G20 average but have been rising more than in any other G20 country. Policy instruments for improving fuel efficiency and reducing emissions are largely lacking. In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised and emissions from aviation need to decrease.

Share in energy-related CO₂ emissions



Data for 2018 | Source: Enerdata 2019 The proportion of low-carbon fuels in the transport fuel mix must increase to about 60% by 2050.

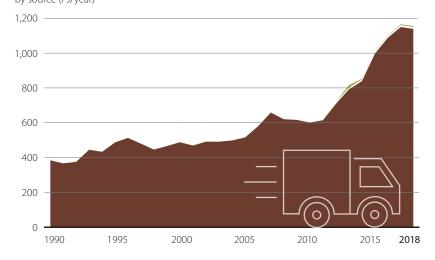


Source: IPCC SR1.5 2018

STATUS OF DECARBONISAT

Transport energy mix

Final energy consumption of transport by source (PJ/year)



Share in 2018

0.5% Biofuels **1.3**% **€** Electricity

0.0% ***** Coal

Source: Enerdata 2019

Electricity and biofuels make up only 1% of the energy mix in transport (the G20 average is 6%).

MITIGATION TRANSPORT SECTOR

TURKEY

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)

+38%

Rating of transport emissions compared to other G20 countries4

Rating trend (2013-2018) very low Rating current level (2018) nedium 💮

Source: own evaluation

Aviation emissions per capita¹¹

(tCO₂/capita)



Aviation emissions per capita have more than doubled (2011-2016), which is by far the strongest increase in the G20.

Data for 2016 Source: Enerdata 2019; IEA 2018

Trend (2011-2016)

Rating of aviation emissions compared to other G20 countries4

Rating trend (2011-2016)

o very low

Rating current level (2016)

medium

Source: own evaluation

Motorisation rate

(vehicles per 1,000 inhabitants)



Data for 2016 | Source: Agora 2018

Market share of electric vehicles in new car sales

no data

Source: IEA 2019

Passenger transport

(modal split in % of passenger km)

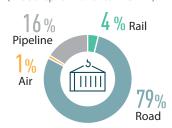


Source: Agora 2018

Only 25% of people in Turkey have a car, although this number is rising rapidly; 79% of freight transport is via road.

Freight transport

(modal split in % of tonne-km)



Data for 2016 | Source: Agora 2018

Phase out fossil fuel cars



Turkey does not plan to phase out fossil fuel-based cars. There are no fuel efficiency standards for cars, only an energy labelling system. In 2016, Turkey implemented a special consumption tax reduction for the sale of battery electric vehicles (EVs) and motorbikes.

Source: own evaluation

Phase out fossil fuel heavy-duty vehicles



Turkey has no strategy for reducing emissions from freight transport nor does it have energy/ carbon emission standards for HDVs, and its tax reductions for EVs explicitly exclude HDVs.

Modal shift in (ground) transport



Turkey has no long-term strategy for a modal shift, but according to its 2011 Climate Change Action Plan it aims to increase the proportion of railroads and seaways in freight and passenger transportation by 2023. It also aims to develop and improve bicycle and pedestrian transport, providing specific targets.

Source: own evaluation

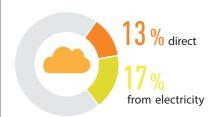
MITIGATION BUILDINGS SECTOR



TURKEY

Turkey's building emissions - including heating, cooking and electricity use - make up a third of total CO₂ emissions. Per capita, building-related emissions are just below the G20 average, but increasing rapidly.

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)



+15.9%



| Source: Enerdata 2019; World Bank 2019

Data for 2018

Trend (2013-2018)

Rating of building emissions compared to other G20 countries4



Source: own evaluation

Residential buildings: energy use per m²

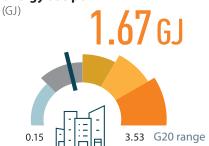
(GJ)



Data: year different per country | Source: ACEEE 2018

Building-related emissions per capita are just below the G20 average. However, Turkey's level of emissions is rising (+16%, 2013-2018) - much more than the G20 average (+1%).

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. In Turkey, energy use per m² floor area is in the lower range of the G20 countries for residential buildings and in the middle range for commercial and public ones.

Near-zero energy new buildings



Turkey is aiming for 15% of energy savings in public buildings by 2023. All new buildings must comply with the Energy Performance of Buildings code, which enforces isolation standards. The 2018 Energy Efficiency Action Plan sets out various measures to improve energy efficiency, and promises for 2019 a strategy for near zero-energy buildings.

Source: own evaluation

Renovation of existing buildings



Turkey has no long-term energy retrofitting strategy. The 2018 National Energy Efficiency Action Plan sets the target to transform at least oneguarter of the 2010 building stock to sustainable buildings by 2023. Mandatory national building energy codes apply to both commercial and residential buildings, applicable only to the renovated area of a building.

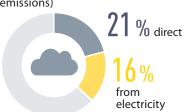
MITIGATION INDUSTRY SECTOR



TURKEY

Energy-related CO₂ emissions from industry make up more than a third of Turkey's CO₂ emissions. More stringent instruments for reducing energy use and emissions in industry are required for a 1.5°C pathway.

Share in energy-related CO₂ emissions (not including process emissions)



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 DECARBONISATIO

Industry emissions intensity¹²

(tCO₂e/US\$2015 GVA)

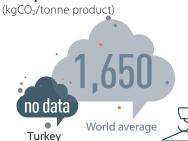


Carbon intensity of cement production¹³ (kgCO₂/tonne product)



Data for 2015 | Source: CAT 2019

Carbon intensity of steel production13



Data for 2015 | Source: CAT 2019

Trend (2011-2016)

Rating of emissions intensity compared to other G20 countries⁴



Source: own evaluation

When comparing industrial emissions with the gross value added (GVA) from the industry sector, Turkey is close to the G20 average. Emissions intensity has dropped more than the G20 average (2011-2016). Steel production and steelmaking are significant GHG emission sources, and are challenging to decarbonise. There is no data on the carbon intensities of Turkey's steel and cement industries.

Energy efficiency



Mandatory energy efficiency policies in Turkey cover only 0-10% of industrial total energy use in 2017. In its National Energy Efficiency Action Plan 2017-2023, it aims to reduce energy intensity by at least 10% in each subsector, implement performance standards, scale up cogeneration systems, and support energy efficiency projects through low-interest loans.

MITIGATION LAND USE



TURKEY

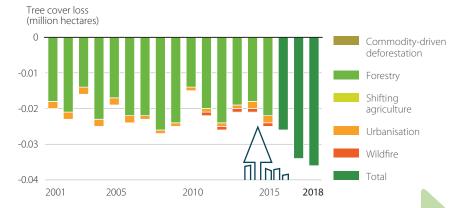


In order to stay within the 1.5°C limit, Turkey needs to make the land use and forest sector a net sink of emissions, eg by halting the expansion of residential areas and largescale infrastructure projects, and by creating new forests.

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 2011 Climate Change Action Plan stipulates that deforestation and forest damage will be reduced by 20% by 2020 to a 2007 baseline. There is no strategy for reducing deforestation to zero.

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, Turkey lost 461kha of tree cover, equivalent to a 4.6% reduction since 2000. This does not take tree-cover gain into account. The main drivers for tree loss are forestry operations and urbanisation.

MITIGATION AGRICULTURE

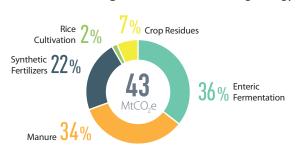


Non-energy agricultural emissions in Turkey come mainly from digestive processes in animals, livestock manure, and the use of synthetic fertilizers. They make up around 12% of total GHG emissions. A 1.5°C pathway requires dietary shifts, increased organic farming, and less fertilizer use.

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 Turkey, the largest sources of non-energy GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), livestock manure, and 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

TURKEY

- → Turkey is vulnerable to climate change and adaptation actions are needed.
- → On average, 29 fatalities and losses amounting to US\$462 million 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.
- → With a 3°C warming, Turkey would experience around 35 days per year when temperatures reach more than 35°C.



ADAPTATION POLICIES

Nationally-determined contribution: Adaptation	

Targets	Not mentioned
Actions	Not mentioned

Turkey's ratification of the Paris Agreement and thus the submission of its definitive NDC are still pending (table presents its INDC). Source: UNFCCC, NDC of respective country

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)
Turkey's National Climate Change Adaptation Stra- tegy and Action Plan	2012	х	x	х	x	x	x	х	х		x	x	х	х	n/a

Source: own research

TURKEY

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

Turkey has already been struck by extreme weather events such as storms, heavy rains, heat waves, fires, flooding and droughts. 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

Agriculture	Maize	Reduction in crop duration		
		Hot spell frequency		
		Reduction in rainfall		
	Wheat	Reduction in crop duration		
<u> </u>		Hot spell frequency		
		Reduction in rainfall		

Source: Based on Arnell et al 2019

Overall, with increasing temperatures, all sectors are adversely impacted. In the water sector, water scarcity increases and time spent in drought conditions drastically increases. Heat wave frequency highly increases together with a high increase in the amount of days above 35°C.

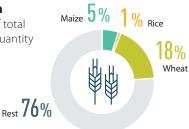
Impact ranking scale



Blank cells signify that there is no data available

National crop production

(share in % of total production quantity in tonnes)



Data for 2017 | Source: FAOSTAT 2019

Wheat and maize represent the largest proportions of crop production out of the four crops analysed (maize, rice, soybeans, wheat). Both crops experience an increase in hot spell frequency and a drastic reduction in crop duration. Whereas maize is negatively affected by an increase in rainfall, wheat experiences a slight reduction.

FINANCE

TURKEY



Turkey's fossil fuel subsidies totalled US\$5 billion in 2017, mainly for petroleum. There is no carbon pricing scheme nor any financial policy or regulation to support the shift from brown to green.

Nationally-determined contribution: Finance						
Conditionality NDC partly conditional on international financial support (not specific						
Investment needs	Not specified					
Actions	Not mentioned					
International market mechanisms	Turkey aims to use carbon credits from international market mechanisms to achieve its 2030 mitigation target					

Turkey's ratification of the Paris Agreement and thus the submission of its definitive NDC are still pending (table presents its INDC). Source: UNFCCC, NDC of respective country

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



Source: IPCC SR1.5 2018

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				х

Source: own research



Turkish banks have followed a market-led route to sustainable banking, aligning with national goals as well as international principles and good practice. In 2014, the Banks Association of Turkey (BAT) issued voluntary sustainability guidelines for the banking sector, prepared by a working group on the role of the financial sector in sustainable growth, with the participation of 18 commercial banks. Meanwhile, Turkey's Banking Regulation and Supervision Agency (BRSA), a member of the IRC Sustainable Banking Network, is undertaking a survey of sustainability-related policies and regulations, as well as working to enhance banks' awareness of sustainability issues.

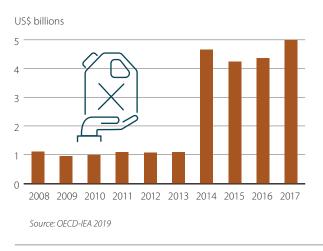
FINANCE

TURKEY

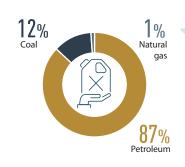
Fiscal policy levers

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, Turkey's fossil fuel subsidies totalled US\$5bn (compared to US\$1.1bn in 2008 and a substantial increase in annual subsidies after 2013). Of the subsidies identified, 90% were for the consumption of fossil fuels, with the remainder for production. The highest amount of subsidies quantified were for petroleum, at US\$4.3bn, followed by coal at US\$0.6bn. In absolute terms, the largest subsidy is the exemptions under the special consumption tax for fuels (naphtha, petroleum coke and petroleum bitumen), resulting in US\$2.4bn.

Carbon revenues

Carbon revenues (US\$ millions) from explicit carbon pricing schemes



, 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

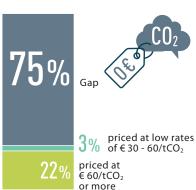
Source: I4CF 2019

No explicit carbon pricing scheme from 2007 to 2018.

Turkey does not have a national carbon tax or an emissions trading scheme in place, but the introduction of a carbon pricing scheme is being considered. Information on the proportion of domestic emissions covered or the price of emissions is yet to be decided.

Carbon pricing gap¹⁵

% of energy-related CO₂ emissions



Data for 2015 | Source: OECD 2018

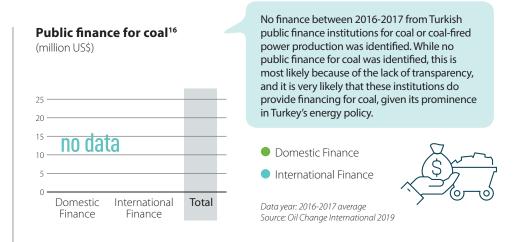
Only 25% of Turkey's CO_2 emissions are priced at EUR30 or higher (the low-end benchmark), creating a carbon pricing gap of 75%. This gap is slightly higher than the G20 average of 71%. The price covers not only explicit carbon taxes but also specific taxes on energy use and the price of tradable emission permits.

FINANCE

TURKEY

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	Turkey 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

Turkey is not listed in Annex II of the UNFCCC, and is therefore not formally obliged to provide climate finance. It is, however, an Annex I country and submits biennial reporting to the UNFCCC. While Turkey may channel international public finance towards climate change via multilateral and other development banks, it has not been included in this report.

Obligation to provide climate finance under UNFCCC







Bilateral climate finance contributions

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

Т	heme of	support	
Mitigation	Adaptation	Cross- cutting	Other
0%	0%	0%	0%

Source: Country reporting to UNFCCC

Multilateral climate finance contributions

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

Source: Country reporting to UNFCCC

Annual average contribution (mn US\$, 2015-2016)	
0	

Theme of support							
Mitigation	Adaptation	Cross- cutting	Other				
0%	0%	0%	0%				

Core/General Contributions



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 emissionsreduction 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 low-emissions 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 low-emissions 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

CLIMATE TRANSPARENCY

Partners:





























Funders:





Supported by:





based on a decision of the German Bundestag

Data Partners:









http://www.climate-transparency.org/g20-climate-performance/g20report2019

C*