Regional Outlook 2021 - Country notes

Turkey

Progress in the net zero transition

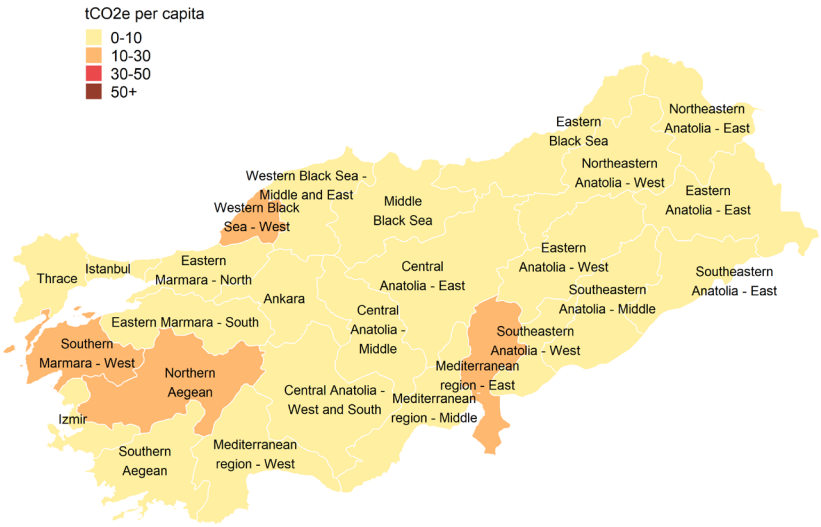
EMISSIONS

2018 OECD average: 11.5 tCO_2e/capita	2018 Turkish average: 6.2 tCO_2e/capita	Turkish net zero target: No commitment yet

Large regions (TL2)

Figure 1. Estimated regional greenhouse gas emissions per capita

Tons CO_2 equivalent (tCO_2e), large regions (TL2), 2018

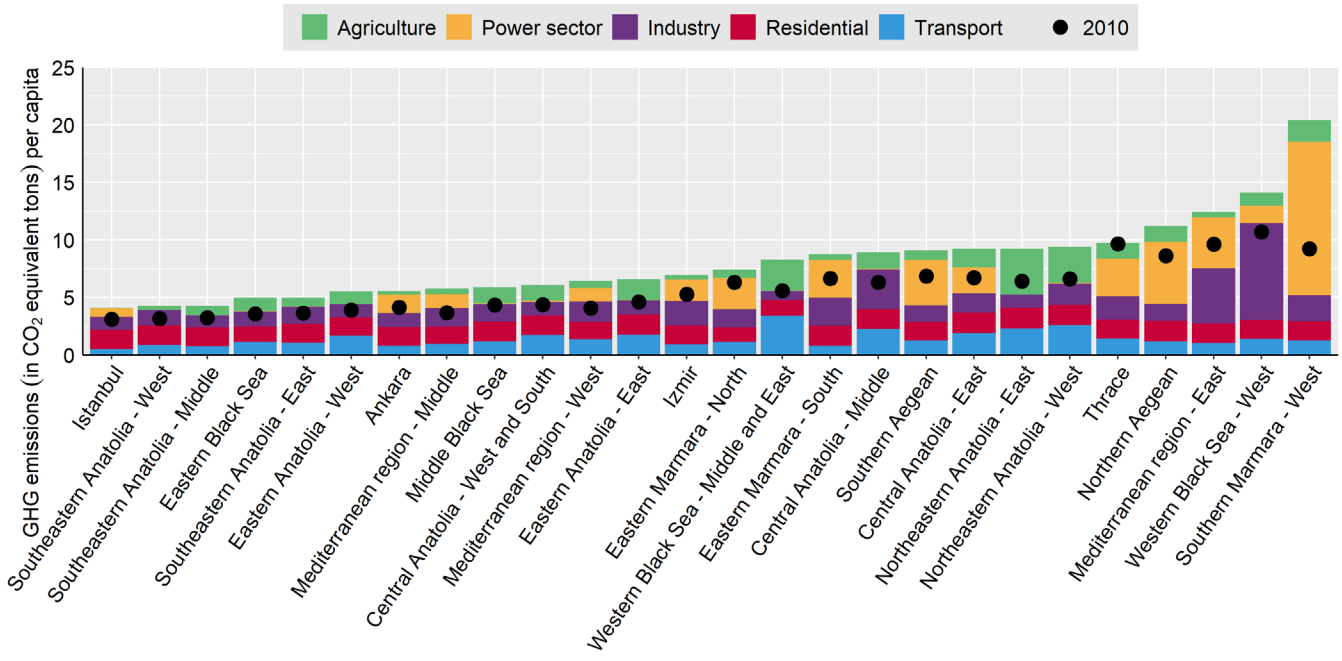


Greenhouse gas (GHG) emissions per capita generated in most Turkish large regions are below 10 tCO_2e per capita. Only Southern Marmara – West, Western Black Sea – West and Mediterranean region - East have higher emissions per capita than the OECD average of 11.5 tCO_2e per capita.

Estimated emissions per capita in Southern Marmara – West are almost five times higher than in Istanbul.

Figure 2. Estimated GHG emissions per capita

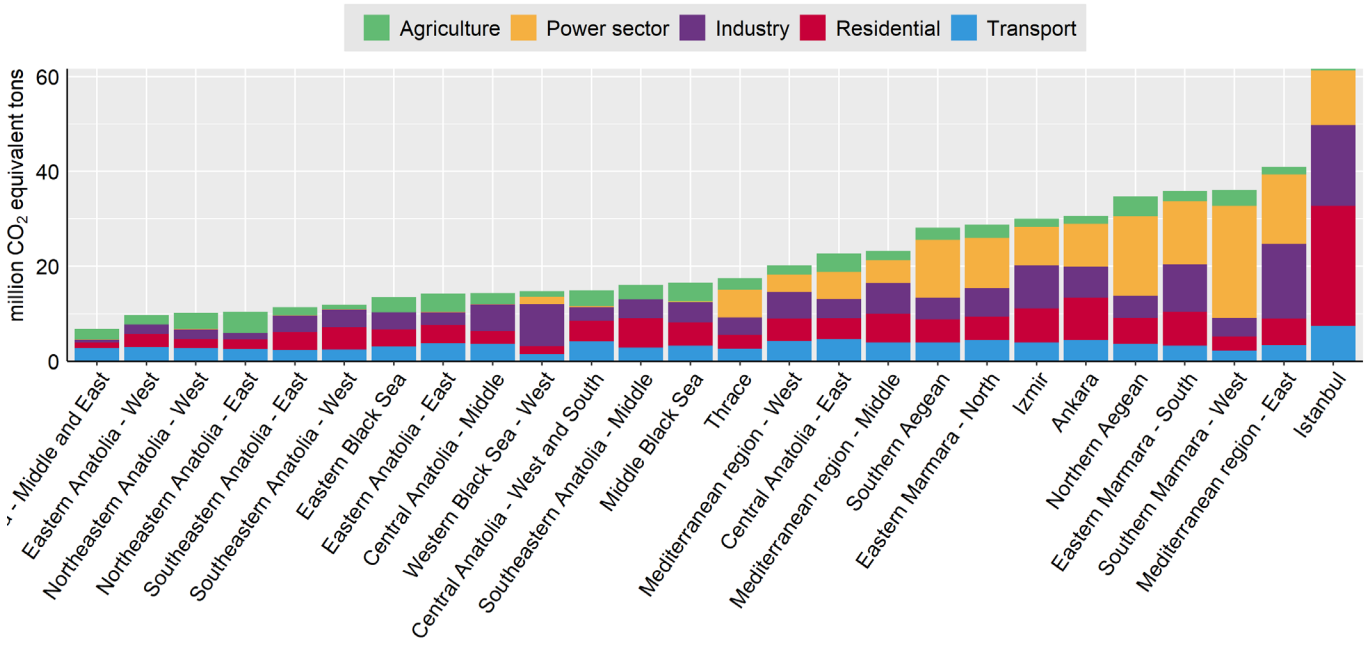
Tons CO_2 equivalent, 2010 & 2018, large regions (TL2)



Estimated emissions per capita have been rising significantly since 2010 in all regions (except for Thrace).

Figure 2. Estimated GHG emissions

Million tons CO_2 equivalent, 2018, large regions (TL2)



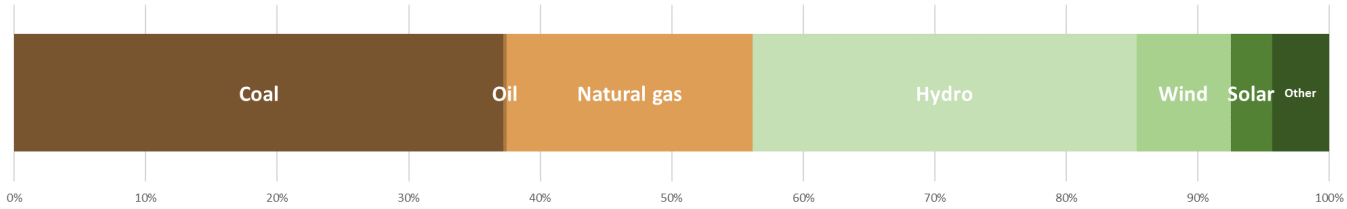
Estimated absolute emissions are highest in Istanbul

Figure notes: Figures 1, 2 and the OECD average show OECD calculations based on estimated greenhouse gas emissions data from the European Commission's Joint Research Centre (ECJRC). The Emissions Database for Global Atmospheric Research of the ECJRC allocates national greenhouse gas emissions to locations according to about 300 proxies. . See Box 3.7 in the 2021 *OECD Regional Outlook* for more details.

ENERGY

Turkish electricity mix

Figure 3. National electricity generation by energy source in 2019

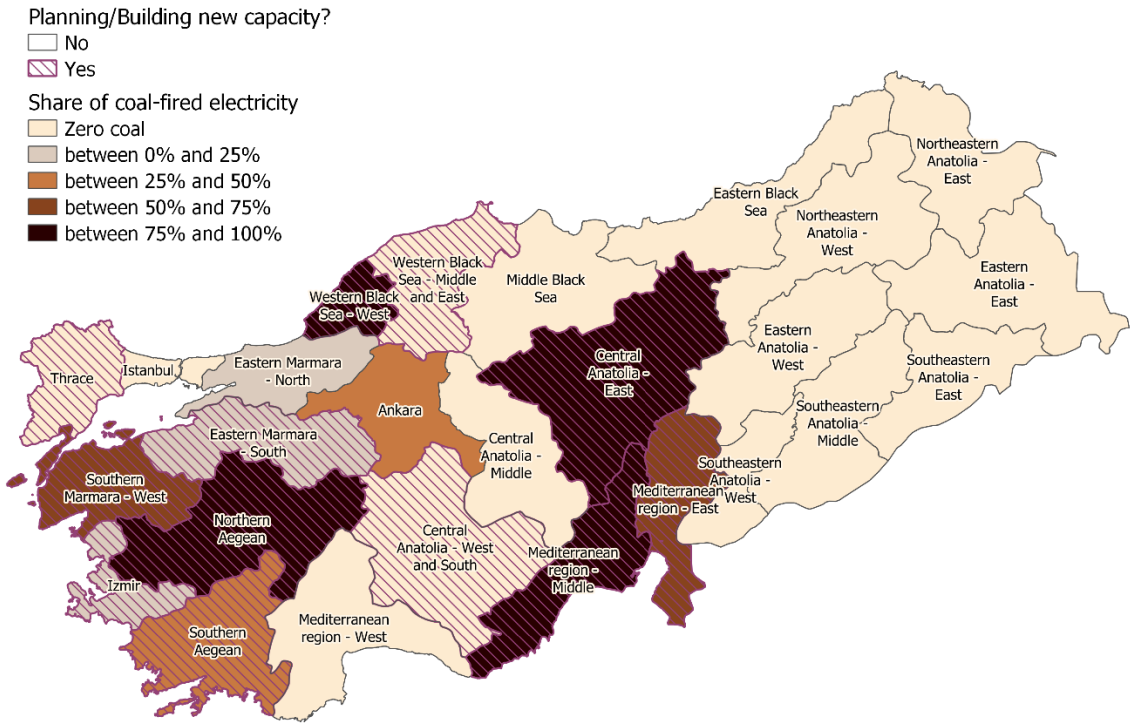


Share of coal-fired electricity generation

2019 OECD average: 23%	2019 Turkish average: 37%	2030 well below 2°C benchmark for Europe: <2% 2030 1.5°C benchmark for OECD countries: 0%

Figure 4. Regional coal-fired electricity generation estimates

Per cent of total electricity generation, large regions (TL2), 2017



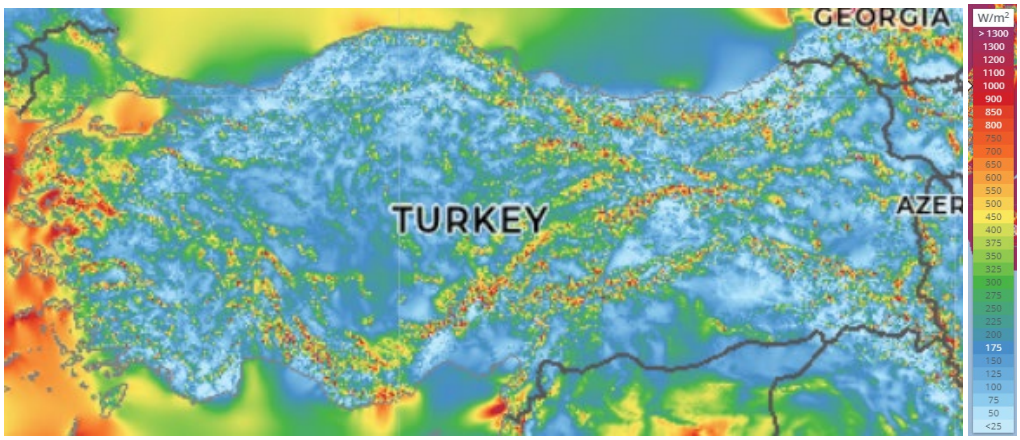
Many regions in the west of Turkey are largely dependent on coal for their electricity generation. Western Black Sea – West exclusively used coal for electricity generation in 2017. In 12 large Turkish regions new coal-fired electricity capacity is planned or being built (Global Coal Plant Tracker, last accessed in April 2021). Among those, three currently do not have any coal-fired electricity capacity. Seeing that OECD regions should be phasing out coal by 2030 and the average lifespan of a coal power plant is 40 years, adding such capacity would expose regions to stranded asset risks, resulting in financial market risks and economic costs.

Wind power

2019 OECD average: 8%	2019 Turkish average: 7%	2030 well below 2°C benchmark for Europe: >27%

Figure 5. Wind power potential

Mean wind power density (W/m²)



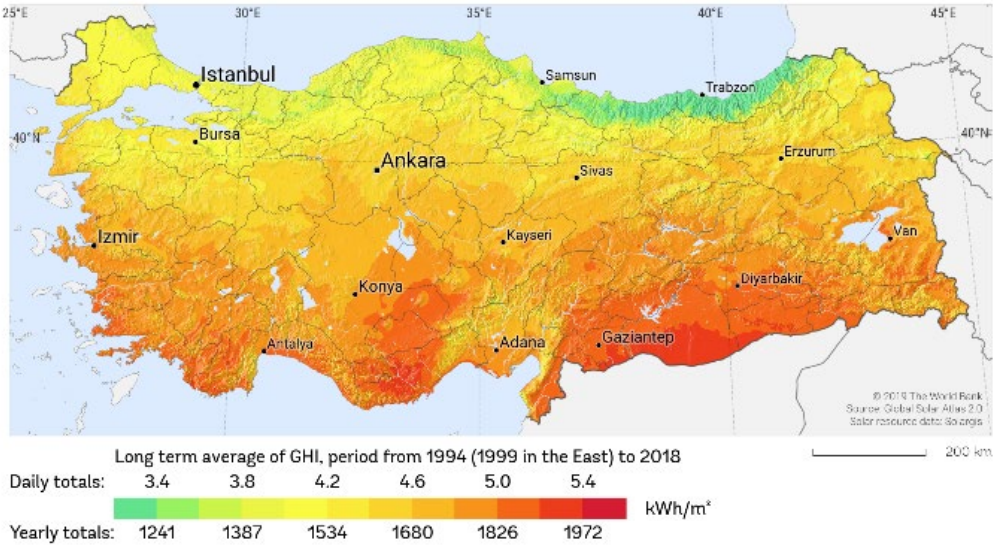
Source: Map produced by The Global Wind Atlas

Solar power

2019 OECD average: 3%	2019 Turkish average: 3%	2030 well below 2°C benchmark for the EU: >11%

Figure 6. Solar power potential

Global horizontal irradiation (kWh/m²)



Source: Map produced by The Global Solar Atlas

The national average shares are far below the 2030 benchmarks. Wind power density is highest offshore, solar power potential is higher in the south.

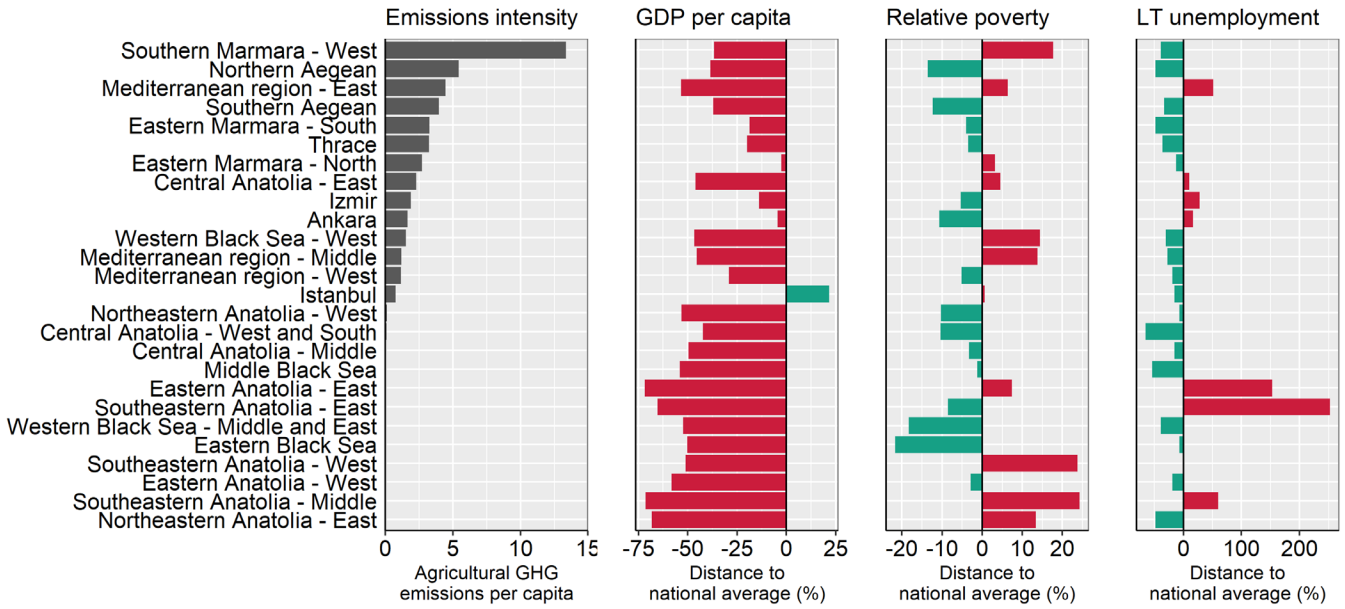
Benchmark notes: The well-below 2 degrees benchmarks show IEA Sustainable Development Scenario (SDS) numbers. The SDS models how the global energy system can evolve in alignment with the Paris Agreement's objective to keep the global average temperature increase well below 2°C above pre-industrial levels. According to the Powering Past Coal Alliance (PPCA), a phase-out of unabated coal by 2030 for OECD countries is cost-effective to limit global warming to 1.5°C.

Figure notes: Figure 3 shows data from the IEA (2020). Figure 4 shows OECD calculations based on the Power Plants Database from the WRI. The database captures electricity generation from the power plants connected to the national power grid. As a result, small electricity generation facilities disconnected from the national power grid might not be captured. See here for more details. Figure 4 also includes coal plans (defined as new capacity announced, pre-permit, permit or in construction) from the Global Coal Plant Tracker published by Global Energy Monitor. Figures 5 and 6 show the power potential of solar and wind. Mean wind power density (WPD) is a measure of wind power available, expressed in Watt per square meter (W/m²). Global horizontal irradiation (GHI) is the sum of direct and diffuse irradiation received by a horizontal surface, measured in kilowatt hours per square metre (kWh/m²).

AGRICULTURE

Figure 7. Estimated GHG emissions from agriculture per capita and relative difference to country means for GDP per capita, relative poverty and long-term unemployment

Large regions (TL2), 2018



While agriculture is not a sector that was broadly identified as being subject to employment risks as identified based on employment effects simulated across OECD countries (See Box 3.9 of the 2021 *OECD Regional Outlook*), it will be subject to important transformations, for example with respect to animal farming, fertiliser use and carbon sequestration. Employment in agricultural activities is very limited in OECD countries.

Regions with a higher emissions per capita in agriculture may have a higher transition risk from rising carbon prices. In Turkey, agricultural emissions per capita are highest in Southern Marmara - West. The transition to net-zero greenhouse gas emissions needs to be just, avoiding social hardship. Regions with higher agricultural emissions per capita are not necessarily the worst performers in terms of GDP per capita, poverty risk and long-term unemployment compared to the national average.

Figure notes: Figure 7 is based on data from OECD Statistics and ECJRC. Poverty risk is assessed from individuals' survey respondents indicating there have been times in the past 12 months when they did not have enough money to buy food that they or their family needed. Long-term unemployment is defined as unemployed for 12 months or more.

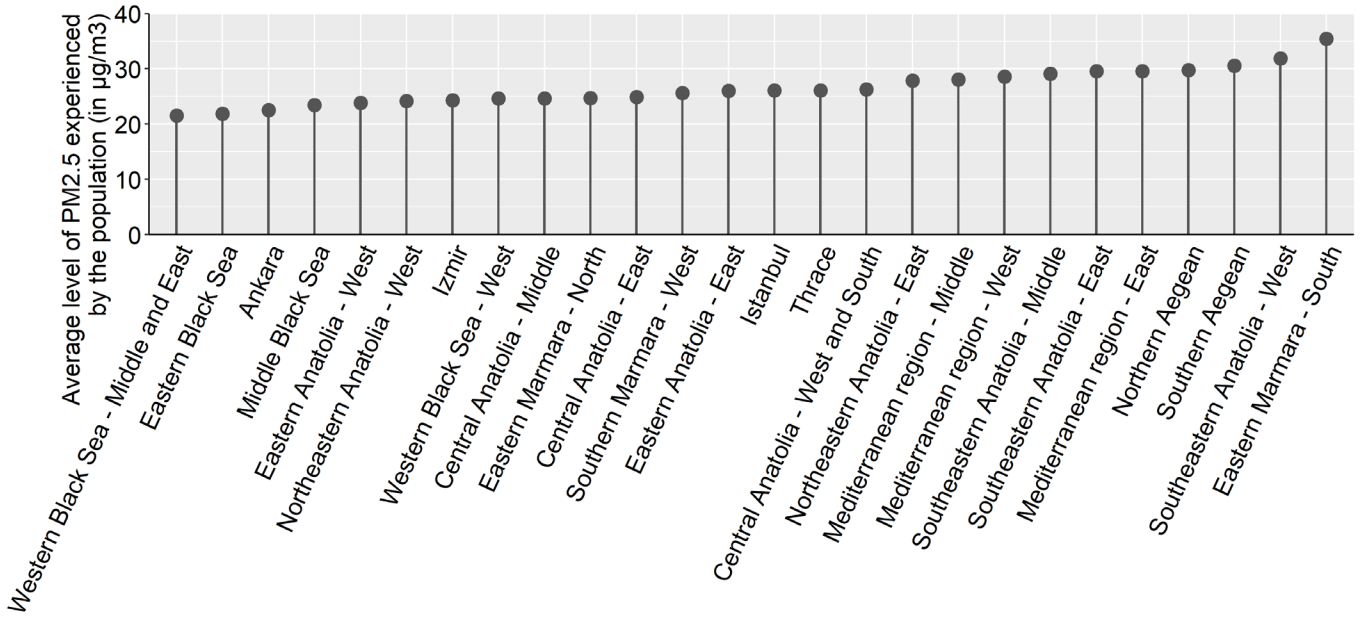
AIR POLLUTION

Large regions (TL2)

2019 OECD share of population exposed above the WHO-recommended threshold: 62%	2019 Turkish share of population exposed above the WHO-recommended threshold: 100%	WHO-recommended air quality threshold: PM2.5 annual mean concentration < 10 µg/m³

Figure 8. Average level of air pollution in PM2.5 experienced by the population

In µg/m³, large regions (TL2), 2019



Policies towards net-zero greenhouse gas emissions can bring many benefits beyond halting climate change. They include reduced air and noise pollution, reduced traffic congestion, healthier diets, enhanced health due to increased active mobility, health benefits through thermal insulation, and improved water, soil and biodiversity protection. Some are hard to quantify.

In all regions 100% of the population is exposed to small particulate matter air pollution above the WHO threshold. Small particulate matter (PM2.5) is the biggest cause of human mortality induced by air pollution. Major disease effects include stroke, cardiovascular and respiratory disease. Air pollution amplifies respiratory infectious disease such as Covid-19. It affects children the most. It reduces their educational outcomes as well as worker productivity.

Figure notes: Figure 8 is based on data from OECD Statistics.