Dark Report 2024

Air Pollution And Health Impacts

righttocleanair
PLATFORM

About The Right to Clean Air Platform (THHP)

The Right to Clean Air Platform (Temiz Hava Hakkı Platformu—THHP) consists of 15 medical professional organisations and environmental and climate NGOs working together on air pollution and its health impacts in Turkey since 2015. The Platform aims to advocate for the right to live in an environment with clean air and to protect public health from air pollution, especially stemming from energy and industrial facilities in Turkey.

Platform Members

Association for the Right to Clean Air (Temiz Hava Hakkı Derneği)
Association of Physicians for the Environment (Çevre için Hekimler Derneği)
Climate Action Network Europe (CAN Europe)
Green Peace Law Association (Yeşil Barış Hukuk Derneği)
Green Thought Association (Yeşil Düşünce Derneği)
Greenpeace Mediterranean (Greenpeace Akdeniz)
Health and Environment Alliance (HEAL)
350 Turkey (İklim için 350 Derneği)
Turkish Medical Association (Türk Tabipleri Birliği)
Turkish Neurological Society (Türk Nöroloji Derneği
Turkish Respiratory Society (Türkiye Solunum Araştırmaları Derneği)
Turkish Society of Occupational Health Specialists (İş ve Meslek Hastalıkları Uzmanları Derneği)
Turkish Society of Public Health Specialists (Halk Sağlığı Uzmanları Derneği)
WWF Turkey
Yuva Association (Yuva Derneği)

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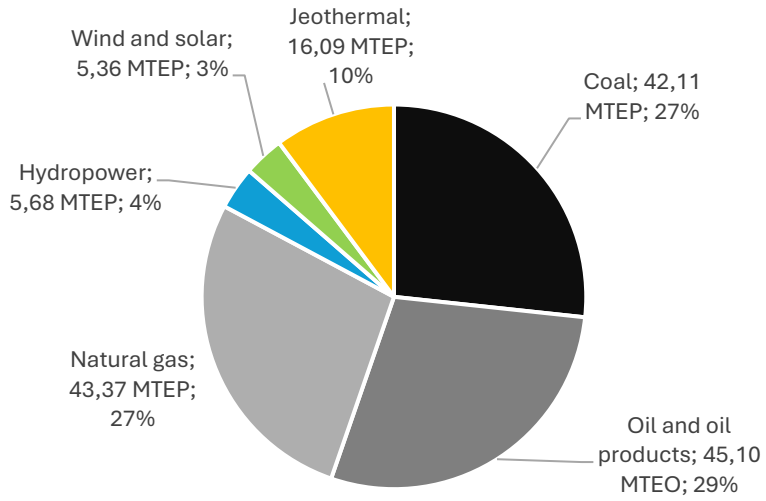
Executive Summary

Turkey Dependent on Fossil Fuels in Energy

Turkey still depends on fossil fuels in primary energy supply and electricity generation. Coal, oil and natural gas, which are fossil fuels, had a share of 82.8% in the primary energy supply in 2022. In the same year, coal ranks first in electricity generation with a share of 34.6 per cent. After coal, natural gas has the highest share, with 22.9%. In industry, 26% of the energy needed was obtained from coal and 60% of the total energy required was obtained from fossil fuels (coal, oil, natural gas).



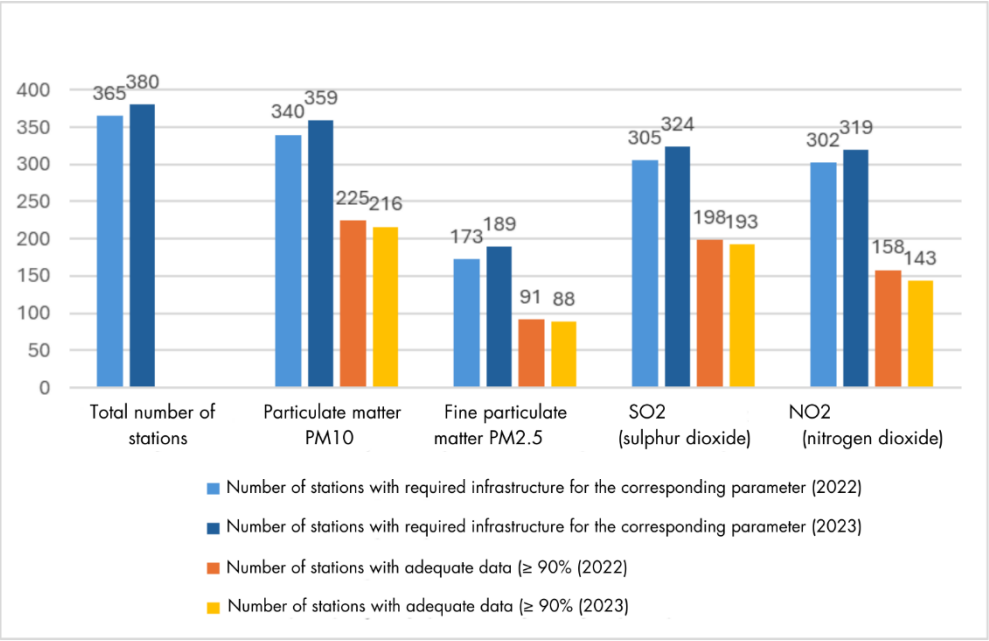
Graphic 1. Distribution of Turkey's primary energy supply by sources in 2022. (Ref: Shura Energy Transition Center, 2023)

According to Turkish Statistical Institute (TurkStat) data, 79 million tons of lignite and 35.1 million tons of hard coal and hard coal coke were consumed in Turkey in 2022. In 2023, lignite consumption decreased (56.7 million tons), while hard coal consumption increased (38.91 million tons). Coal, the highest amount used in thermal power plants and industry, creates air pollution problems with vital

consequences due to inadequate air quality management policies and issues in implementation and exemptions granted to these facilities in the national legislation.

Air Quality Monitoring: Insufficient

Although there were 365 air quality monitoring stations in Turkey in 2022, which increased to 380 in 2023, not all stations monitor the parameters that should be monitored according to the legislation. For instance, $PM_{2.5}$ is monitored in less than half of the existing stations. In addition, data collection from the stations is not at an adequate level. Although particulate matter (PM_{10}) is the most widely monitored parameter throughout the country, sufficient PM_{10} data could be obtained from only 225 of 365 stations, i.e. 61%. This rate is 25% for fine particulate matter ($PM_{2.5}$), 54% for sulfur dioxide (SO_2) and 43% for nitrogen dioxide (NO_2). Although the total number of stations has increased in 2023, the number of stations with sufficient data is lower than in 2022.



Graphic 2. The number of stations that have the infrastructure for corresponding pollutant parameters and provide sufficient annual data acquisition rate in 2022 and 2023.

In 2023, data from the National Air Quality Monitoring Network of the Ministry of Environment, Urbanisation and Climate Change revealed that, according to the standards set by the World Health Organization, at least 92% of Turkey's population breathed polluted air.

Air Pollution in Heavy Industrial Zones Not Monitored Adequately

Particulate matter monitoring is very limited in areas with concentrated heavy industry using fossil fuels, particularly coal. No measurements for particulate matter (PM_{10}) were conducted in 2022 and 2023 in Sakarya - Hendek OSB, Kocaeli - Gebze OSB, and Kocaeli - Dilovası - İMES OSB, which are known to be some of the most polluted areas. Only half of the 30 industrial air quality monitoring stations across the country have fine particulate matter (PM2.5) infrastructure. Sufficient data was obtained from only nine stations in 2022 and 12 stations in 2023.

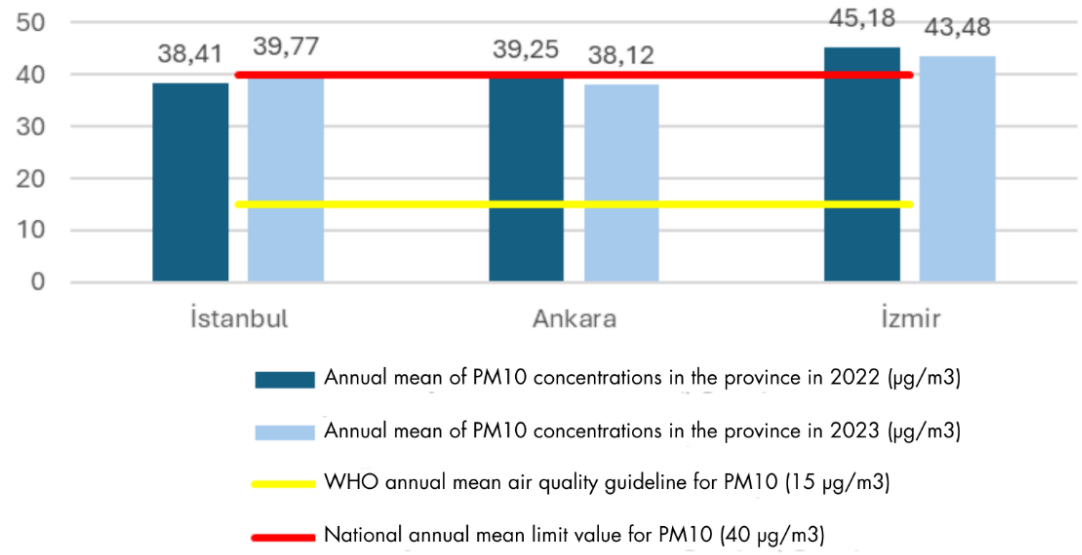
PM2.5 is a highly harmful air pollutant recognised by the World Health Organization as a human carcinogen. It is responsible for more than 4 million deaths worldwide each year. One of the primary sources of PM2.5 is coal combustion in thermal power plants and industrial facilities.

Particulate Matter Pollution in Izmir Exceeds National Limit Values

Particulate matter, SO_2 and NO_2 are not monitored regularly and adequately in the three biggest cities, İstanbul, Ankara and İzmir. This means that 26 million people lack reliable information about the quality of the air they breathe.

Calculated based on the data from the Ministry of Environment, Urbanization, and Climate Change, the annual mean particulate matter concentration in Istanbul in 2022 was 38.41 $\mu g/m^3$, 2.5 times the World Health Organization's guideline value. PM2.5 is not sufficiently measured in the province. Sultangazi, Esenyurt and Mecidiyeköy are the most polluted districts in the province.

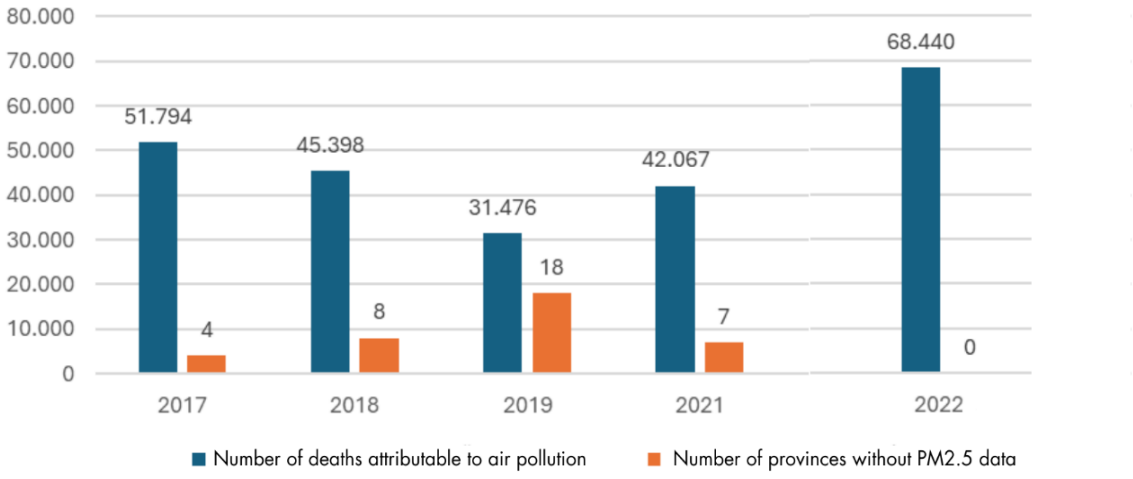
Within the data limitations, the annual averages of PM10 for 2022 are calculated to be 39.25 $\mu g/m^3$ in Ankara and 45.18 $\mu g/m^3$ in Izmir. The PM10 levels of Izmir exceed both the WHO guideline value and the national limit value. The primary sources of PM10 pollution in Ankara and Izmir are the industrial sector and traffic. Ostim, Siteler, and Sıhhiye are the neighbourhoods where Ankara's highest pollution levels were measured. Izmir's top three most polluted areas are Torbalı, Karşıyaka, and Alsancak.



Graphic 3. Comparison of PM10 annual mean values of the three biggest cities in 2022 and 2023.

Air Pollution-Related Deaths Approach 70,000

According to the annual health impact assessment in the Dark Report, 68,440 deaths in 2022 could have been prevented if the levels of fine particulate matter ($PM_{2.5}$) in provinces had been reduced to the WHO guideline value of 5 µg/m^3. This means 14.2% of the total 480,991 deaths of individuals over 30 years of age in Turkey in 2022, excluding accidents, injuries, and COVID-19-related deaths, are linked to air pollution. Deaths caused by air pollution were higher than in previous years, both in numbers and proportionally.



Graphic 4: Number of deaths attributed to air pollution in Turkey by years and number of provinces without PM2.5 data

Air Pollution Linked to Increased Risk of Breast Cancer

According to the World Health Organization (WHO), breast cancer is the most prevalent type of cancer among women, and its incidence is on the rise. In 2022, 2.3 million women globally received a diagnosis of breast cancer, and 670,000 women lost their lives due to this disease.

Today, there is an increasing number of scientific studies revealing the connection between air pollution and the rising incidence of breast cancer. Every 10 $\mu g/m^3$ increase in NO_2 in outdoor air increases the risk of breast cancer by 1.02 times. According to another study, the risk of dying from breast cancer increases by 1.05 times for every 10 µg/m3 increase in PM10.

There is strong epidemiological and biological evidence linking exposure to PM2.5 with cancer. For instance, a study in the USA revealed an 8% increase in breast cancer cases among individuals residing in areas with higher exposure to PM2.5.

Ozone Pollution Poses Threat to Plant Health

In the Ambient Air Quality Regulation, the AOT40 limit value, which aims to protect both plant and human health, will be assessed for the first time by the end of 2024. This evaluation will be based on the yearly averages starting from 2022 data. Unlike other pollutants, ozone levels are higher, especially in the peripheral areas of urban centres and rural areas. According to the AOT40 calculations conducted for 2022 at selected stations, the AOT40 limit value was exceeded in most cases. Strategies for reducing ozone, a secondary pollutant with a complex formation mechanism, will need to be significantly different from those for other pollutants. Ozone effects can be observed at the regional level or even across borders. Therefore, local planning will not be sufficient for reducing ozone; national or even international planning and cooperation will be necessary.

Air Pollution: A Public Health Concern After the Earthquake

More than 53 thousand people lost their lives, and more than 107 thousand people were injured in the 6 February 2023 Kahramanmaraş earthquakes and 20 February 20 February Hatay earthquakes. According to official data, the dust pollution caused by the physical destruction of the buildings has become a secondary disaster that poses a significant threat to public health.

According to official air quality data from four earthquake-damaged provinces in 2023, the annual PM10 levels increased by 47.44% in Kahramanmaraş Elbistan,

39.33% in Hatay İskenderun Centre, 13.76% in Malatya, and 8.59% in Kahramanmaraş Onikişubat. There are also hazardous substances that can be transported through dust. In the study conducted by the Right to Clean Air Platform, the Turkish Medical Association, and the regional medical chambers, asbestos was detected in Adıyaman, Kahramanmaraş Centre and Elbistan.

Even though the debris removal work has been completed, long-term dust pollution will persist from the debris storage areas, which were determined without any preliminary studies.

Turkey Does Not Implement International Conventions on Air Quality

The Convention on Long-Range Transboundary Air Pollution, which operates within the framework of the United Nations Economic Commission for Europe, was put into force by Turkey in 1983. Turkey is only a party to the 1984 Protocol on Long-Term Financing of the Cooperative Programme for the Monitoring and Assessment of Long-Range Transport of Air Pollutants in Europe (EMEP) out of the nine protocols of the convention. In other words, the Republic of Turkey is a party only to the protocol on the measurement of pollutants. It has not signed the protocols containing commitments and strategies for reducing pollutant emissions. In most reports submitted under the EMEP Protocol, Turkey continues to use the Tier 1 method, which has the lowest data quality.

The Minamata Convention on Mercury is an international convention that aims to protect the environment and human health against the adverse effects of mercury and mercury compounds from human activities. Turkey officially became a party to the convention in 2022. In Turkey, 74% of mercury is released into the atmosphere, easily evaporating and travelling long distances, causing local, regional, and global pollution. One of the primary sources of mercury is coal combustion in thermal power plants and heavy industrial facilities.

Even though Turkey joined the convention in 2022, it has not updated its laws to meet its obligations under the convention. Turkey has also not developed and submitted its national plans to the Conference of the Parties as the convention requires.

Challenges in Right of Access to Environmental Information

One of the rights enshrined in the Constitution of the Republic of Turkey is the right to information. This right is also guaranteed in the international human rights regime and environmental conventions. Within this legal framework, there is no doubt that

the requested environmental information and documents should be shared. Numerous judicial decisions also confirm this. However, public institutions and organisations often fail to provide environmental information, either by not responding to requests or claiming the information falls under exceptions. For instance, the Ministry of Environment, Urbanization, and Climate Change did not provide the requested information on the environmental performance of thermal power plants in Afşin-Elbistan and in Çanakkale Çan to citizens and civil society organisations, despite court decisions.

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