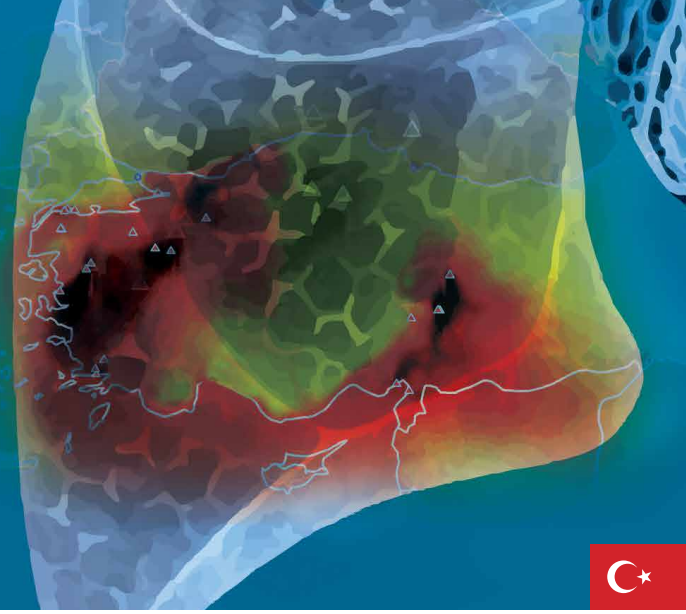
BRIEFING

Chronic coal pollution Turkey: Zonguldak



1. Turkey has a persistent chronic coal pollution problem, costing money and lives

At the end of 2021, Turkey entered a new era on climate and energy, with the country's ratification of the Paris Climate Agreement and the setting of a 2053 net zero carbon target. However, Turkey has not yet set a date to phase out coal, and is still pushing ahead with plans to double its current coal power capacity[1]. Recent studies show a 2030 phase out is feasible and would lead to a reduction of carbon emissions from the power sector by 82.8%[2].

Coal power generation fuels climate change and harms health, through the release of thousands of tons of CO_2 and hazardous air pollutants. HEAL's Chronic Coal Pollution Turkey report[3] quantified for the first time the health burden of Turkey's 28 large operating coal power plants in 2019. Unlike in many other countries, in Turkey, data on emissions to soil, water and air at facility level is not publicly available. HEAL's chronic coal pollution analysis aims to respond to this gap by providing for estimates on coal plant stack emissions and related health impacts and cost (for details on the methodology see HEAL's website[4]).

With this briefing, HEAL provides evidence on the significant health toll of chronic coal pollution in Zonguldak, across the lifetime of the four plants currently in operation. For Turkey as a whole, the country's chronic coal addiction has caused 196,091 cases of premature deaths since 1965 (the year the oldest still active coal plant was commissioned), with health costs of up to 320 billion EUR, or 4.8 trillion Turkish Lira[5].

[1] Representing the plants with the capacity over 50 MW, 74 units in 31 coal plants have a total capacity of 19.4 GW, while 34 new units in 20 coal plants are planned with a total capacity of 14.5 GW.

[2] Europe Beyond Coal et al. (November 2021). First Step in the Pathway to a Carbon Neutral Turkey: Coal Phase out 2030 https://caneurope.org/new-report-the-roadmap-for-paris-compatible-turkish-coal-exit/

[3] Gacal, F., Gierens, R., Jensen, G., Myllyvyrta, L., Stauffer, A., Zander E., (January 2021). Chronic coal pollution Turkey, the health burden caused by coal power in Turkey and how to stop the coal addiction. Health and Environment Alliance. https://www.env-health.org/wp-content/uploads/2021/02/Chronic-Coal-Pollution-Turkey_web.pdf

[4] Methodology can be found on HEAL's website

[5] December 2021 monthly rate of 1 EUR = 15 TRY

2. The cumulative health burden from coal power in Zonguldak

Zonguldak, in the north-west Black Sea region of Turkey, was established as a port town for the nearby hard coal mines 150 years ago. Coal mining and coal power plants continue to be the main economic sector in the region. Currently, 125,000 people live in Zonguldak, but the population is expected to decrease, given that coal mining is in decline and concerns about the environmental and health toll of the coal addiction are increasing. Coal mined in Zonguldak is not only used to generate electricity, but also in industrial facilities and for heating. Data on the emissions from the latter two uses is not available; HEAL's health assessment therefore concentrates on power generation even though the actual health toll is expected to be higher.

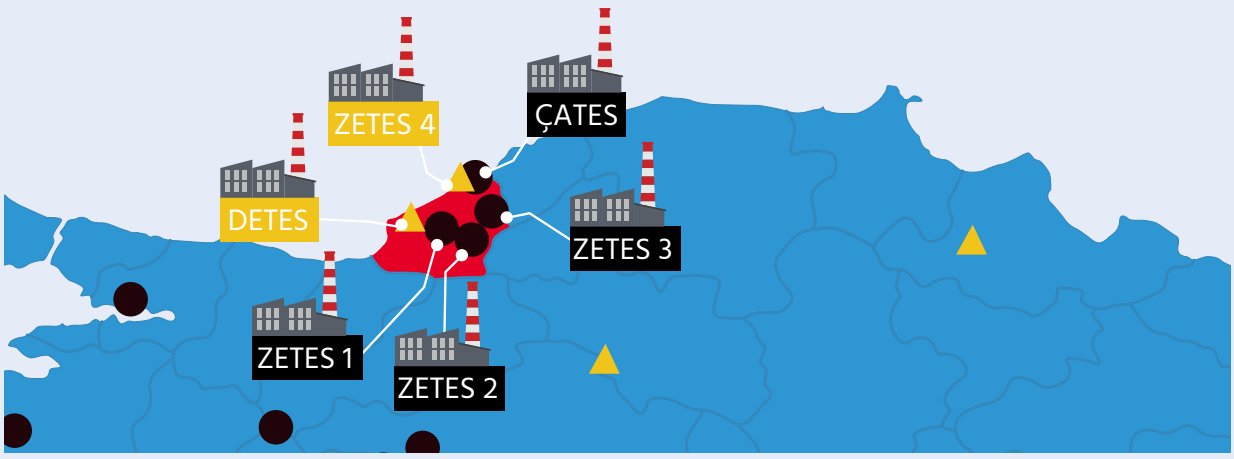
There are four operating coal power plants in the region: Çatalağzı Termik Santrali, also known as ÇATES (in operation since 1989, with a capacity of 314 MW, and hard coal combustion) and Zonguldak Eren Termik Santrali, also known as the ZETES coal complex, which includes ZETES 1 (in operation since 2010, with a capacity of 160 MW, and hard coal combustion), ZETES 2 (in operation since 2010, with a capacity of 1,230 MW, and hard coal combustion) and ZETES 3 (in operation since 2016, with a capacity of 1,400 MW, and hard coal combustion).

In addition to this, Zonguldak is home for the oldest coal power mines and plants in Turkey. Previously there were additional units in ÇATES which started operation in 1940s but later closed down. Similar plants, which operated and closed before 2020, were not able to be considered for this study.

Despite the existing chronic coal burden, an increase of coal capacity is being planned. A 660 MW addition for ÇATES is in the pipeline, and for DETES a new plant with a 160 MW capacity is scheduled, with both set to burn hard coal.

All ZETES plants are private, and the ÇATES plant was privatised in 2014. Regarding obligations for emissions control, sulfur oxide (SO_x) emission control systems were only installed in 2020, after a 6 months long suspension of operations. This means that for the last 30 years, untreated SO_x emissions were releasing from the stacks, putting the health of thousands of people at risk, and harming the environment. SO_x pollution is particularly harmful to the respiratory system[6] and pollutants contribute to the formation of particulate matter, which is of great health concern.

Zonguldak - coal power plants in operation and in the pipeline

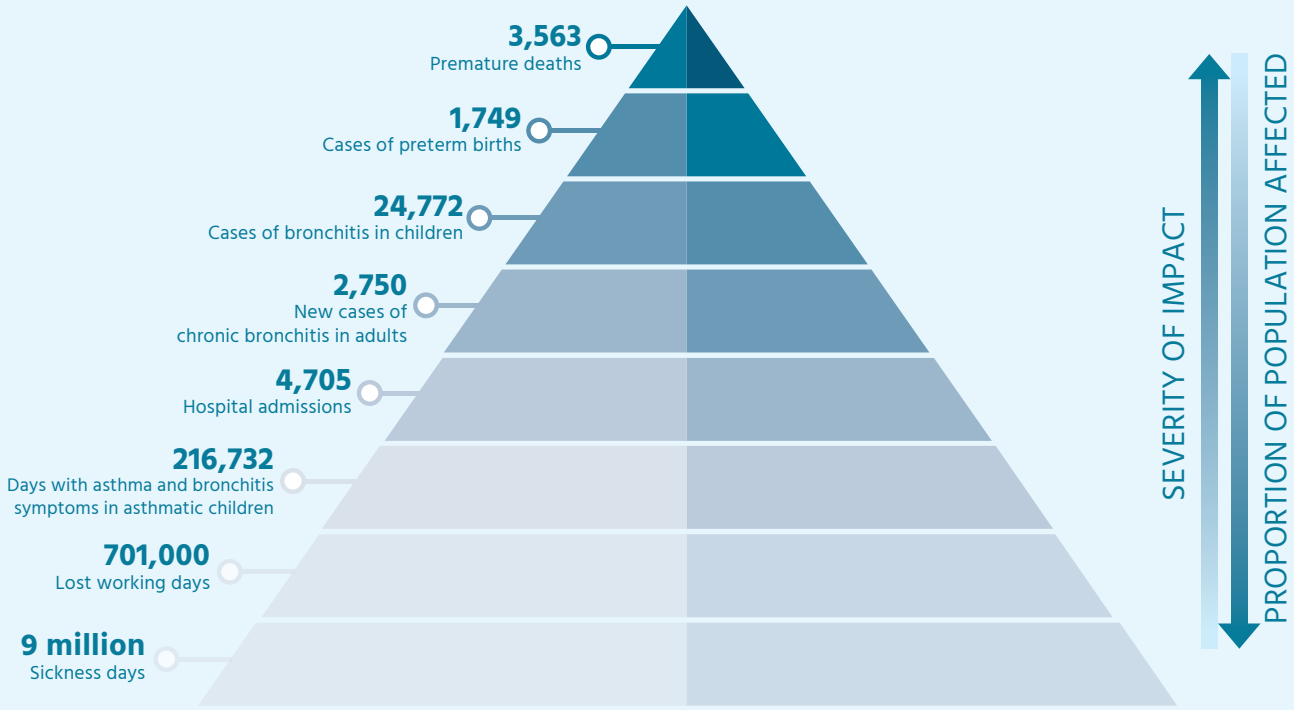


● Coal power plants in operation

▲ Coal power plants in the pipeline

[6] Sulfur dioxide affects the respiratory system, particularly lung function, and can irritate the eyes. Sulfur dioxide irritates the respiratory tract and increases the risk of tract infections. It causes coughing, mucus secretion and aggravates conditions such as asthma and chronic bronchitis.

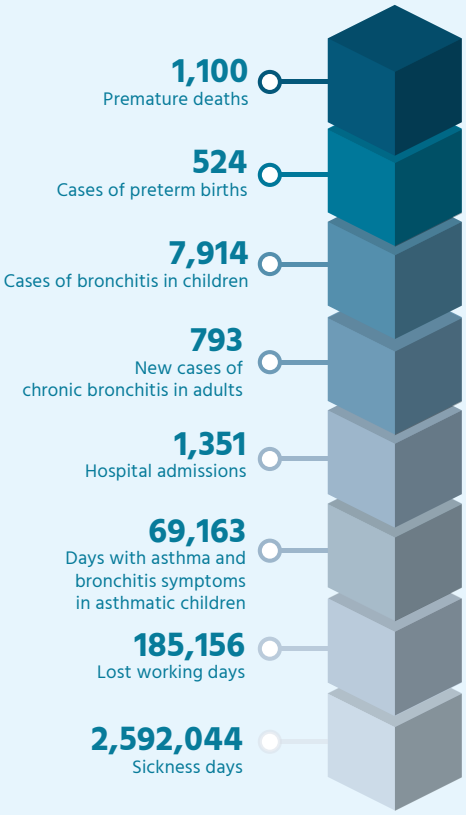
The health burden from the four existing coal plants in Zonguldak has added up to:



CUMULATIVE HEALTH COST 1989-2020

up to 132.45 billion Turkish Lira, or **up to 8.83 billion EUR**

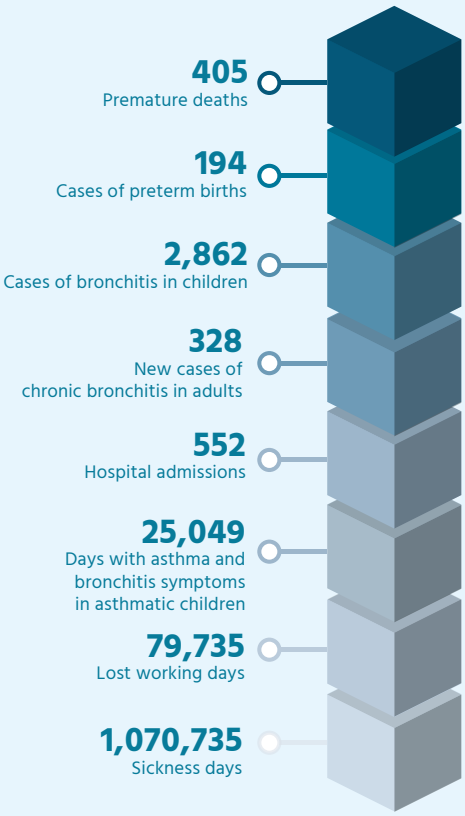
The economic cost of cumulative health impacts of four operating plants across the region (since first operation in 1989 to end 2020) are up to 132.45 billion Turkish Lira, or up to 8.83 billion EUR.[7]



ÇATES

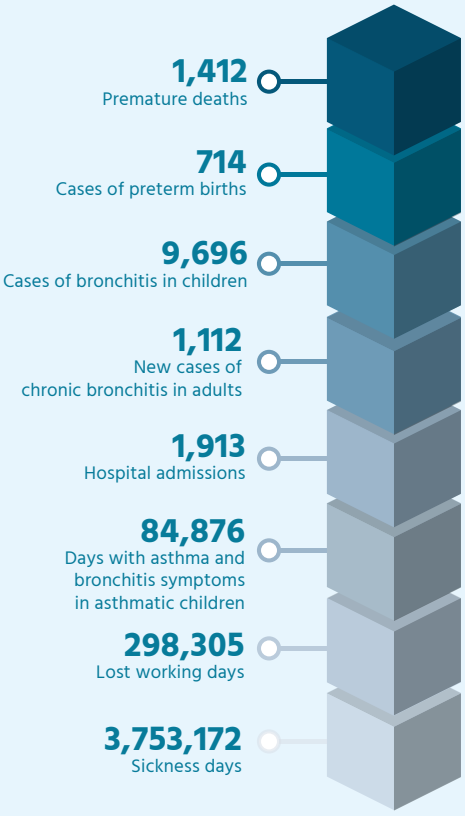
In operation since: 1989
314 MW
CUMULATIVE HEALTH COSTS:
2.29bn EUR

[7] Health and Environment Alliance. (January 2021). Chronic coal pollution Turkey. The health burden caused by coal power in Turkey and how to stop the coal addiction. https://www.env-health.org/wp-content/uploads/2021/02/Chronic-Coal-Pollution-Turkey_web.pdf



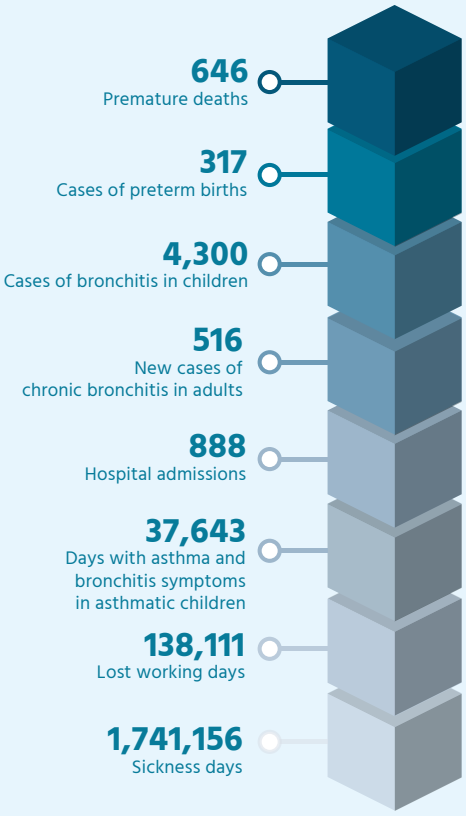
ZETES 1

In operation since: 2010
160 MW
CUMULATIVE HEALTH COSTS:
1.07bn EUR



ZETES 2

In operation since: 2010
1,230 MW
CUMULATIVE HEALTH COSTS:
3.67bn EUR



ZETES 3

In operation since: 2016
1,400 MW
CUMULATIVE HEALTH COSTS:
1.80bn EUR

3. Recommendations

FOR POLICY-MAKERS

Immediately stop ÇATES capacity increase plans and new DETES plant.

Set a date for phasing out the 4 existing plants, by 2030 at the latest.

When setting the phase out date, carry out a health impact assessment to quantify the health cost, to inform decisions on how swift the phase out needs to happen. As a first step, make health statistics in Zonguldak publicly available, for a better understanding of the health burden.

In order to understand the true health cost from coal power in Zonguldak, improve transparency and allow for scientific assessments by reporting emissions from the electricity sector in a transparent manner. This includes making data on emissions from large combustion plants, including coal power plants publicly available (and reporting data to E-PRTR).

FOR HEALTH BODIES AND HEALTH PROFESSIONALS

Increase the capacity of health and medical organisations and individuals (such as patients) in Zonguldak to engage on environmental pollution and climate change through communication and by providing evidence. The Lancet Countdown's publications on climate change, the WHO special report to COP26[8] and the WHO manifesto on a healthy recovery[9] can serve as a guidance.

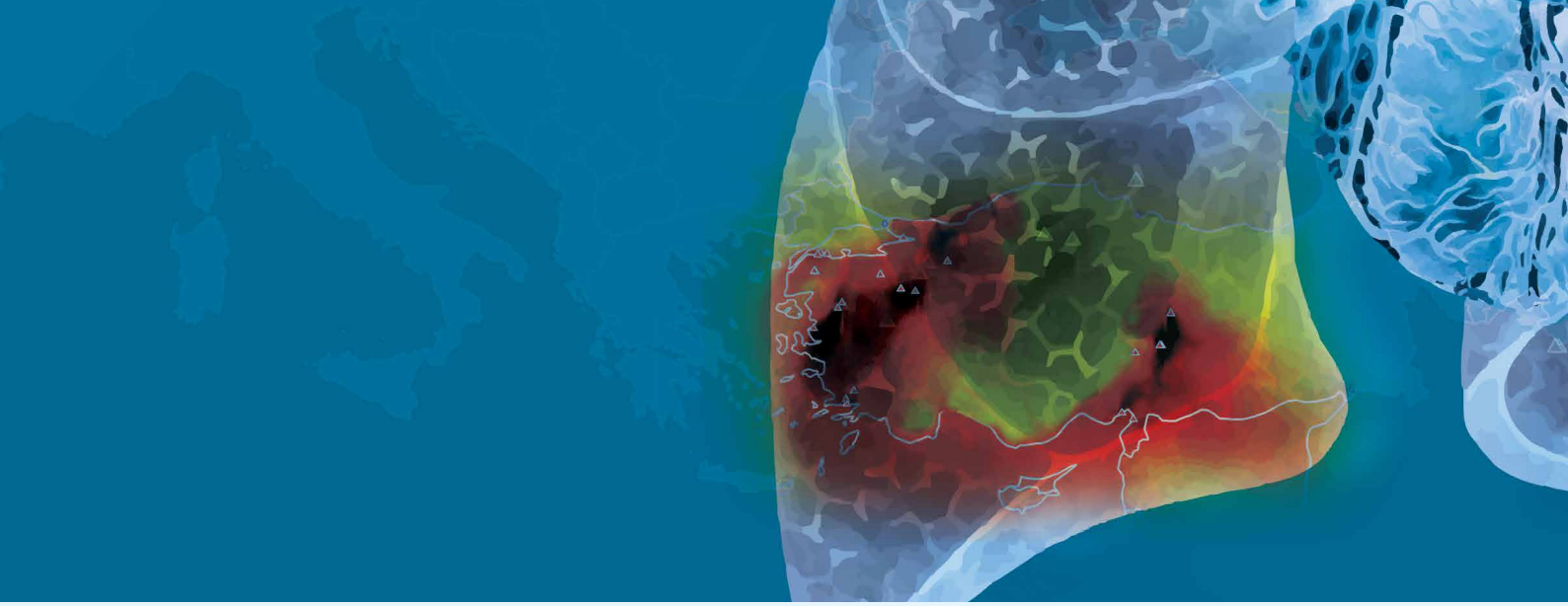
Highlight the true costs of coal power generation in economic and public health deliberations and decisions, and work towards increasing public understanding of how public health will benefit from reducing coal's unpaid health bill.

As Turkish Ministry of Health, participate in the development and implementation of clean air activities and plans, as well as energy and climate policies. Zonguldak has a clean air plan approved in 2014, where emission control and shifting to clean energy generation are decided[10]. Implement these commitments without further delay, as air pollution is now the biggest environmental health threat for Turkey, these actions would save lives, jobs and be win-win for the Turkish economy.

[8] World Health Organization. (October 2021). COP26 Special Report on Climate Change and Health. https://www.who.int/publications/i/item/cop26-special-report

[9] WHO Manifesto for a healthy recovery from COVID-19. Released in May 2020. https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19

[10] Zonguldak Provincial Directorate of Environment and Urbanization. (2014). Zonguldak Temiz Hava Eylem Planı (in Turkish). https://webdosya.csb.gov.tr/db/zonguldak/webmenu/webmenu36983.pdflani-20180118170502.pdf



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The Health and Environment Alliance (HEAL) is the leading non-profit organisation addressing how the environment affects human health in the European Union (EU) and beyond. HEAL works to shape laws and policies that promote planetary and human health and protect those most affected by pollution, and raise awareness on the benefits of environmental action for health. HEAL's over 90 member organisations include international, European, national and local groups of health professionals, not-for-profit health insurers, patients, citizens, women, youth, and environmental experts representing over 200 million people across the 53 countries of the WHO European Region. As an alliance, HEAL brings independent and expert evidence from the health community to EU and global decision-making processes to inspire disease prevention and to promote a toxic-free, low-carbon, fair and healthy future.

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For details on the methodology and plants see: env-health.org

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