

Air pollution from coal power plants

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Background - 1 July, 2016

For too long the coal industry has used our atmosphere like an open sewer for its airborne pollution. These emissions fuel climate change, but they also pose a serious threat to our health and environment. These threats include smog, acid rain, toxic mercury, and fine particles that embed deep in our lungs.

By breaking free from coal, we can fight both air pollution and climate change. The shift to 100 percent clean, safe [renewable energy](#) will be a huge double win for the health of people and our planet.

About airborne pollutants from coal plants

Burning [coal is the biggest single source](#) of carbon dioxide emissions from human activity. But coal power plants emit many harmful pollutants into the air, including:

- sulphur dioxide (SO₂)
- nitrogen oxides (NO_x)
- particulate matter (PM)
- various trace metals including mercury (Hg)

Once these pollutants enter the air from coal plant stacks they can disperse and cause harm over large areas.

Burning coal leads to acid rain and smog

Coal power plants release large amounts of sulphur dioxide and nitrogen oxides.

Nitrogen oxides are [greenhouse gases](#), but these pollutants also react with organic compounds to form smog (ground level ozone). Harmful to our health, smog increases risk of asthma, lung damage and premature death. It also damages plants, making them vulnerable to disease and extreme weather.

Nitrogen oxides and sulphur dioxide also contribute to acid rain.

When these pollutants mix with water, oxygen, and other chemicals in the air, they form nitric and sulphuric acid. The resulting acid rain can spread over a wide area, killing fish and plants. In forests, acid rain damages tree leaves and strips nutrients from soils.

Coal burning releases toxic mercury

Globally, coal-fired power plants are the largest single source of mercury emissions. They release over half of the mercury pollution from human activity.

Mercury is a neurotoxin; it has harmful effects on the brain and nervous system.

Mercury released from power plants settles into the environment, spreading into groundwater and entering the food chain via algae. From there it infects all life, from minnows to fish that prey on them, and on to fish-eating birds and mammals. Passing from lower to higher levels of the food chain, mercury concentrations increase.

- In the USA, forty-nine states have issued fish consumption advisories due to high mercury concentrations in freshwater bodies.

Particle pollution hurts our lungs

Also called particulate matter, or PM, particle pollution is possibly the most harmful emission from coal power plants. These very small unburned pollution particles released directly from coal plant smokestacks cause an estimated 800,000 premature deaths each year.

When inhaled, particle pollution can have wide-ranging and harmful health effects, including asthma attacks, lung tissue damage, stroke, heart attack and premature death.

- Particles 2.5 microns (PM_{2.5}) or smaller can penetrate deep into the lungs, and caused five percent of global deaths, making this the sixth leading global risk factor in 2013, according to the Global Burden of Disease (GBD) study.
- The first analysis on [death and disease due to coal power plants in India](#) estimates 80,000 to 115,000 people died prematurely in a single year due to particle pollution 10 microns in size (PM₁₀).
- [Research co-authored by Greenpeace in China](#) shows that PM_{2.5} pollution from the 196 coal-fired power plants in the Beijing-Tianjin-Hebei capital region caused 9,900 premature deaths and nearly 70,000 outpatient visits or hospitalizations during 2011. Seventy-five percent these premature deaths were caused by Hebei province's 152 coal-fired power plants.

What is Greenpeace doing?

Greenpeace exposes coal industry air pollution and the harm it does to our health, and communicates this to the world.

We push governments in many countries to strengthen their air quality standards and coal fired power plant emission standards.

We fight to stop new power plants from being built. We push to see plans for these dirty projects replaced with clean renewable energy projects, such as wind and solar.

What can you do?

- Explore ways [you can help reduce emissions](#) from transport, save energy, and power up your life with clean renewable energy.
- Find out about Greenpeace campaigns against coal plants [where you live](#).
- Monitor your air: Check local air quality through your government's air quality report, or [use "AirNow"](#) air quality monitoring data from US embassies and consulates around the world.

More information

- Learn more about air pollution from [burning fossil fuels](#).
- Read about [impacts of coal mining](#), including its health impacts.
- Read [Coal Kills](#), the first estimate of health effects due to India's coal power plants.
- Read [Licence to Kill](#), an estimate of damage South Africans could avoid if coal burning utility Eskom fully complied with national emission standards.
- Read our report on the [health impacts of coal power plants in China's Beijing, Tianjin and Hebei provinces](#).
- Read [Silent Killers](#), why Europe must replace coal power with green energy.