The effect of CEE coal power plants on health, air quality and climate change

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HEAL: 70 members from 30 countries

- scientists
- patients
- doctors
- nurses
- students
- health insurers
- NGOs
- research institutes
- public health experts
“COAL IS THE SINGLE GREATEST THREAT TO CIVILISATION AND ALL LIFE ON OUR PLANET”

Climate scientist James Hansen
Air pollution – silent killer:

- Air pollution causes around **7 000 000 premature deaths** per year worldwide; **430 000** in the EU.

- About **87 percent of the world’s population** now live in countries in which ambient pollution levels exceed air quality guidelines set by the World Health Organization.

- Premature deaths due to air pollution in 2013 cost the global economy about **$225 billion in lost labor income**, or about **$5.11 trillion in welfare losses worldwide**. That is about the size of the gross domestic product of India, Canada, and Mexico combined.

- Both air pollution and climate change present **serious risks to public health**. Air pollution is currently the **biggest environmental threat of the public health in the world**.

Coal’s impact on the human body

How coal emissions affect human health

Pollutants transform into secondary PM & spread over large areas

Effects from exposure to PM$_{2.5}$ on the body
Secondary PM from coal increases the air pollution problem and affects large numbers of people

BRAIN: stroke, impaired cognitive function and brain development
HEART: heart disease, heart attack
LUNGS: breathing problems, asthma, chronic lung disease, lung cancer
PANCREAS: diabetes
FETUS: premature delivery, low birth weight, low sperm quality

Source: (2016), Can Europe, WWF, HEAL, Sandbag. Europe’s Dark Cloud, How coal-burning countries are making their neighbours sick
Coal’s impact on the human body

**COAL’S IMPACTS ON THE HUMAN BODY**

*Health Impact of Particulate Matter Emissions from Coal-Fired Power Plants*

**Short-term (hours to days):**
- Cardiovascular & respiratory hospital admissions
- Restricted activity days
- Work days lost
- Incidence of asthma symptoms in asthmatic children & adults
- Higher death rates
- Reduced lung function

**Long-term (years):**
- Reduced life expectancy
- Mortality from cerebrovascular or coronary heart disease, COPD & cancer of the lungs, bronchi & trachea
- Infant mortality
- Prevalence of bronchitis in children
- Incidence of chronic bronchitis in adults
- Incidence of lung cancer & bladder cancer
- Incidence of ischemic heart disease including heart attacks
- Heart arrhythmia
- Incidence & prevalence of COPD (chronic obstructive pulmonary disease)

**Further health effects with some supporting scientific evidence:**
- Pre-term birth
- Low birth weight
- Impaired sperm quality
- Increased risk of type 2 diabetes
- Atherosclerosis & high blood pressure
- Impaired cognitive development in infants & impaired cognitive function in adults

Source: (2016), Can Europe, WWF, HEAL, Sandbag  *Europe’s Dark Cloud, How coal-burning countries are making their neighbours sick*
Climate change and health – key facts:

• Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.

• Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.

• The direct damage costs to health (i.e. excluding costs in health-determining sectors such as agriculture and water and sanitation), is estimated to be between $2-4 billion/year by 2030.

• Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.

• Reducing emissions of greenhouse gases can result in improved health, particularly through reduced air pollution.

Source: http://www.who.int/mediacentre/factsheets/fs266/en/
Europe’s Dark Cloud

First ever analysis of cross-border health impacts of air pollution from coal use in electricity generation in the European Union.

Source: (2016), Can Europe, WWF, HEAL, Sandbag Europe’s Dark Cloud, How coal-burning countries are making their neighbours sick
• EU’s currently operational coal-fired power plants were responsible for about 22,900 premature deaths in 2013 (compared to 26,000 deaths in road traffic accidents in the EU the same year).

• The coal plants were responsible for 11,800 new cases of chronic bronchitis and 21,000 hospital admissions in 2013.

• The health impacts of EU coal created an overall bill of 32.4 to 62.3 billion Euros.
Europe’s Dark Cloud

• Coal plants in **Germany and Poland** alone cause over 7,000 premature deaths abroad - 4,700 from Poland and 2,500 from Germany.

• Coal plants in the **Netherlands** cause over 200 premature deaths abroad.

• Coal plants in **Romania** cause 1,600 deaths abroad.

• Coal plants in the **UK** cause 1,300 premature deaths abroad.

• Coal plants in the **Czech Republic** cause 1,300 premature deaths abroad.

• The biggest health impacts from coal abroad are seen in **France** with 1,200 premature deaths caused by coal pollution from **Germany, the UK, Poland, Spain and the Czech Republic** alone.
Europe’s Dark Cloud

PREMATURE DEATHS FROM COAL-FIRED POWER PLANTS
ACCORDING TO COUNTRY IN WHICH THE COAL PLANTS RESPONSIBLE ARE SITUATED (2013)

Source: (2016), Can Europe, WWF, HEAL, Sandbag  Europe’s Dark Cloud, How coal-burning countries are making their neighbours sick
Europe’s Dark Cloud

**THE COAL PLANTS WITH THE BIGGEST IMPACTS ON HEALTH (2013)**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Power plant</th>
<th>Country</th>
<th>Premature Deaths</th>
<th>Chronic bronchitis</th>
<th>Hospital admissions</th>
<th>Lost working days</th>
<th>Asthma attacks in children</th>
<th>€m Health costs median</th>
<th>€m Health costs high</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Belchatów</td>
<td>PL</td>
<td>1,270</td>
<td>630</td>
<td>1,310</td>
<td>359,200</td>
<td>27,830</td>
<td>1,790</td>
<td>3,450</td>
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<tr>
<td>2</td>
<td>Maritsa East 2</td>
<td>BG</td>
<td>730</td>
<td>370</td>
<td>640</td>
<td>192,820</td>
<td>18,150</td>
<td>1,050</td>
<td>2,000</td>
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<tr>
<td>3</td>
<td>Kozienice</td>
<td>PL</td>
<td>650</td>
<td>320</td>
<td>660</td>
<td>186,500</td>
<td>14,140</td>
<td>920</td>
<td>1,770</td>
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<tr>
<td>4</td>
<td>Drax</td>
<td>UK</td>
<td>590</td>
<td>300</td>
<td>480</td>
<td>142,590</td>
<td>14,630</td>
<td>820</td>
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<tr>
<td>5</td>
<td>Rybnik</td>
<td>PL</td>
<td>480</td>
<td>240</td>
<td>490</td>
<td>134,660</td>
<td>10,380</td>
<td>670</td>
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<tr>
<td>6</td>
<td>Bobov Dol</td>
<td>BG</td>
<td>470</td>
<td>240</td>
<td>390</td>
<td>123,280</td>
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<tr>
<td>7</td>
<td>Jänschwalde</td>
<td>DE</td>
<td>470</td>
<td>240</td>
<td>420</td>
<td>157,000</td>
<td>10,080</td>
<td>660</td>
<td>1,270</td>
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<tr>
<td>8</td>
<td>Novaky</td>
<td>SK</td>
<td>470</td>
<td>230</td>
<td>450</td>
<td>138,320</td>
<td>9,700</td>
<td>640</td>
<td>1,240</td>
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<tr>
<td>9</td>
<td>Niederaussem</td>
<td>DE</td>
<td>450</td>
<td>190</td>
<td>340</td>
<td>125,320</td>
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<td>10</td>
<td>Drobeta</td>
<td>RO</td>
<td>430</td>
<td>220</td>
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<td>118,170</td>
<td>10,840</td>
<td>620</td>
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</tr>
</tbody>
</table>

Source: (2016), Can Europe, WWF, HEAL, Sandbag  Europe’s Dark Cloud, How coal-burning countries are making their neighbours sick
Europe’s Dark Cloud

In 2014, the EU’s 280 coal plants released 755 million tonnes of CO2 - representing around 18% of the EU’s total greenhouse gases. Based on the CO2 emissions data available for 2015, almost half of the EU’s total CO2 emissions from coal - 367 million tonnes - were released by the 30 most polluting plants, the ‘Dirty 30’.

Source: (2016), Can Europe, WWF, HEAL, Sandbag  Europe’s Dark Cloud, How coal-burning countries are making their neighbours sick
Lifting Europe’s Dark Cloud

• Improved environmental performance standards and stricter limits for pollution from coal power plants could help to tackle air pollution

• More than half of European coal power plants have been granted special ‘permission to pollute’ beyond the levels set in laws designed to control emissions
Lifting Europe’s Dark Cloud

A revision of the EU’s ‘LCP BREF’, a technical document outlining best practices for industry, would lead to tougher new pollution limits and has the potential to reduce the number of premature deaths caused by coal power plants from 22,900 to 2,600 deaths per year (as well as other health consequences).

Source: (2016), Can Europe, WWF, HEAL, Sandbag, EEB, Lifting Europe’s Dark Cloud, How cutting coal saves lives
Lifting Europe’s Dark Cloud

More than half of Europe’s coal power plants currently enjoy exemptions, or ‘derogations’ that allow them to pollute over the agreed ‘safety net’ limits set out in the Industrial Emissions Directive. These plants were responsible for **13,700 deaths in 2013, which was 60 percent of all coal-related deaths in Europe.**

- Transitional National Plan (TNP)
- Limited Lifetime Derogation (LLD)
- Peak load
- Accession Treaty
- District Heating (CHP)
- Burning of indigenous solid fuels (‘Desulphurisation Rate Derogation’)
- Small isolated systems

Source: (2016), Can Europe, WWF, HEAL, Sandbag, EEB, Lifting Europe’s Dark Cloud, How cutting coal saves lives
Under the EU Emissions Trading System (EU ETS) the power sector no longer receives allowances for free but is required to purchase them from auctioning. **An exception is made through the so called Article 10c of the EU ETS Directive.** This provision allows lower-income Member States from Central and Eastern Europe to give allowances for free to electricity installations under the condition that they invest at least the equivalent monetary value of the free allowances in the modernisation and diversification of their energy systems.

*Source: (2016), Can Europe, WWF, HEAL, Sandbag, EEB, Lifting Europe’s Dark Cloud, How cutting coal saves lifes; Fossil fuel subsidies from Europe’s carbon market Carbon Market Watch Policy Briefing, April 2016*
<table>
<thead>
<tr>
<th>plant name</th>
<th>country</th>
<th>premature deaths</th>
<th>derogations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bełchatów</td>
<td>Poland</td>
<td>1270</td>
<td>*</td>
</tr>
<tr>
<td>Kozienice</td>
<td>Poland</td>
<td>652</td>
<td>TNP/AT</td>
</tr>
<tr>
<td>Rybnik</td>
<td>Poland</td>
<td>476</td>
<td>TNP/AT</td>
</tr>
<tr>
<td>Połaniec</td>
<td>Poland</td>
<td>178</td>
<td>LDD/AT</td>
</tr>
<tr>
<td>Maritsa East</td>
<td>Bulgaria</td>
<td>730</td>
<td>*</td>
</tr>
<tr>
<td>Bobov Dol</td>
<td>Bulgaria</td>
<td>470</td>
<td>*</td>
</tr>
<tr>
<td>Rovinari</td>
<td>Romania</td>
<td>245</td>
<td>TNP/AT</td>
</tr>
<tr>
<td>Govora</td>
<td>Romania</td>
<td>234</td>
<td>TNP</td>
</tr>
</tbody>
</table>

Source: (2016), Can Europe, WWF, HEAL, Sandbag, EEB, Lifting Europe’s Dark Cloud, How cutting coal saves lives
Conclusions:

✔ cutting coal saves lives
✔ coal power’s ‘permission to pollute’ is harming human health
✔ deadly delays are costing lives across Europe
✔ stronger limits will save even more lives

**EU level:**
✔ Close loopholes in the new proposed standards
✔ Publish the revised standards without delay
✔ Strengthen the Industrial Emissions Directive (IED)

**National level:**
✔ Set emissions levels in line with what Best Available Techniques can already achieve.
✔ Implement new pollution limits now.
✔ Commit to a 100% coal phase-out and a speedy transition to renewable sources of energy
“THE DANGEROUS IMPACTS OF COAL ON HEALTH FROM EXPOSURE TO AIR POLLUTION... AND THE MAJOR CONTRIBUTION THAT BURNING COAL AND THE RELEASE OF GREENHOUSE GASES HAS IN CHANGING THE LONG-TERM CLIMATE ALMOST CERTAINLY UNDERMINES THE USE OF COAL AS A LONG-TERM FUEL.”

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