TOXIC COAL: COUNTING THE HEALTH COST OF WEAK EU AIR POLLUTION LIMITS

MEDIA BRIEFING MAY 2015

Draft EU air pollution standards for coal power plants could lead to 71,000 avoidable deaths between 2020 and 2029, due to increased risk of stroke, heart disease, lung cancer and other diseases associated with air pollution[1], according to research commissioned by Greenpeace and the European Environmental Bureau[2]. The resulting coal pollution would also cause hundreds of thousands of additional cases of cardiac and respiratory illnesses, such as chronic bronchitis and asthma. Children would be particularly affected.

Building on official data, the new study models health impacts resulting from proposed EU emission limits[3] and compares them to limits based on best available techniques. Mercury pollution from coal under the proposed limits would, for instance, have a greater impact on the mental development of foetuses, new born babies and young children, compared to emission limits reflecting best available techniques. Toxic emissions would also cause over 200,000 extra cases of acute bronchitis in children and severely increase the occurrence of asthmatic attacks. Overall, the increased health risks from air pollution would cost Europeans an estimated €52 billion over ten years, based on values used by the European Environment Agency[4].

These additional deaths and illnesses – and the resulting costs – could be avoided if the EU stood by its mandate to set standards in line with what best available techniques at best performing lignite and coal-fired power plants already achieve under economically viable conditions.

Health impact	Difference between proposed EU limits and limits based on best available techniques	Unit
Mortality (30yr+)	71,200	Deaths
Mortality (30yr+)	772,800	Life Years Lost
Infant mortality (0-1yr)	150	Deaths
Acute bronchitis (children 6-12yr)	204,500	Cases
Chronic bronchitis (27yr+)	60,600	Cases
Respiratory hospital admissions (all ages)	29,000	Admissions
Cardiac hospital admissions (18yr+)	28,800	Admissions
Asthma symptom days (children 5-19yr)	2,160,200	Days
Restricted activity days (all ages)	83,484,800	Days
Lost working days (15-64yr)	23,222,700	Days
IQ loss from mercury	29,600	IQ points
Overall costs	52.45	Billion €

Figure 1: Difference between the estimated health impacts of proposed EU emission limits and emission limits based on best available techniques cumulatively between 2020 and 2029.

Source: Results of simulations carried out with EMEP MSC-W modelling, using emission data from the Holland, Myllyvirta & Schaible atmospheric chemistry-transport model (2015).

COAL LOBBYISTS CAPTURE EU PROCESS

The EU is currently updating its air emission limits for large industrial installations, including lignite and coal-fired power plants, under the Industrial Emissions Directive. The decision-making process to set the new standards known as the *"Seville process"*, will determine binding limits for toxic air emissions of sulphur dioxide (SO_2), nitrogen oxides (NO_X), mercury (Hg) and particulate matter (PM2.5) which will apply for the next decade.

On 1 April 2015, an EU expert body, the European Integrated Pollution Prevention and Control (IPPC) Bureau, tabled a set of proposed standards that will be examined by an EU working group later this year, before formal adoption in early 2016. A Greenpeace report published in March, *Smoke and Mirrors – How Europe's biggest polluters became their own regulators*, showed that the proposed EU limits are weaker than existing limits and real-life emission rates achieved in China, the United States and Japan[5].

HEALTH EFFECTS OF BURNING COAL

Coal-related pollution is already having serious effects on the health of Europeans. Research by Stuttgart University, commissioned by Greenpeace, estimates that emissions from coal-fired power plants in the EU alone were responsible for 22,300 premature deaths in 2010[6].

Exposure to toxic PM2.5 is the largest environmental health threat in Europe, increasing risk of death from heart disease, respiratory diseases and lung cancer, and shortening life expectancy by 6-12 months in most European countries. PM2.5 was recently identified as a leading environmental cause of cancer deaths by the World Health Organisation's cancer agency[7]. SO_2, NO_X and dust emissions from coal-fired power plants all contribute to PM2.5 exposure.

Another coal-induced air pollution threat comes from mercury. Coal-fired power plants are the largest source of mercury emissions into the air in the EU. More than 1.8 million children are born every year with mercury levels above the safe threshold[8] and 200,000 babies are born in the EU every year with mercury levels that are known to harm their mental and neurological development[9].

The report also warned that the Seville process has been captured by the fossil fuels industry, exposing the infiltration of industry lobbyists on government delegations. Of the various bodies involved in drafting the new standards, the most important is the Technical Working Group, chaired by the European IPPC Bureau. We found that the Technical Working Group is dominated by participants from energy industries with a total of at least 46 representatives in government delegations employed by energy companies, in addition to 137 formal industry representatives participating in the process.

STANDARDS TO SUIT THE COAL INDUSTRY

According to the OECD, the most affordable way to reduce deaths from air pollution is both to invest in end-of-pipe controls and a move to cleaner energy sources[10]. Strict limits on air pollution from coal-fired power plants would drive the use of techniques to prevent or reduce emissions, thereby improving European air quality, saving tens of thousands of lives and improving the health of hundreds of thousands of Europeans.

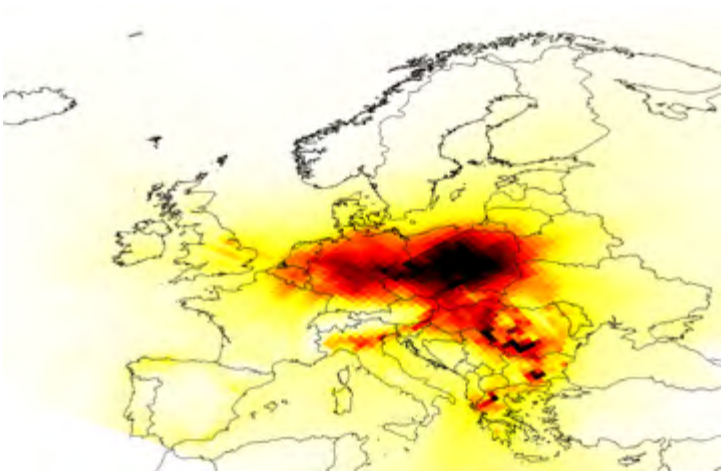
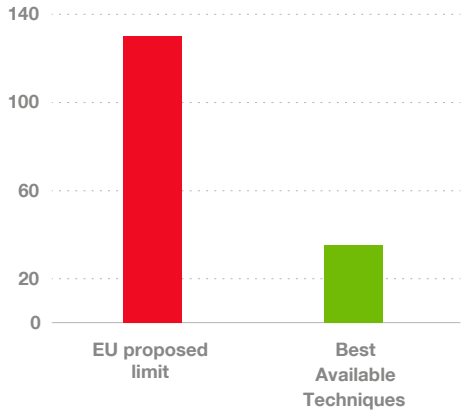


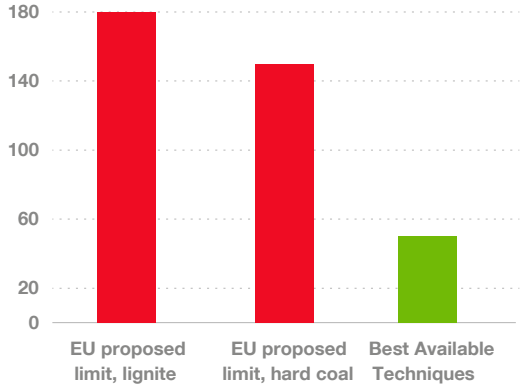
Figure 2: Difference in PM2.5 concentrations in emissions from coal-fired power plants under emission limits reflecting best available techniques and under emission limits currently proposed by the EU. Dark yellow, orange, red and brown areas are those that would be most impacted by weak emission limits.

Source: Results of simulations carried out with EMEP MSC-W modelling, using emission data from the Holland, Myllvvirta & Schaible atmospheric chemistry-transport model (2015).

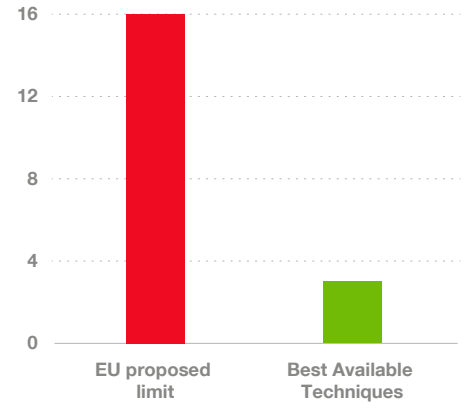
Proposed EU emission limits for SO_2, which is the pollutant responsible for approximately half of premature deaths attributed to coal-fired power plants, would keep emissions three to five times higher than what can be achieved with best available techniques. Proposed emission limits for mercury are so lenient that an estimated 85 percent of European plants are already in compliance and will not have to invest in retrofitting.



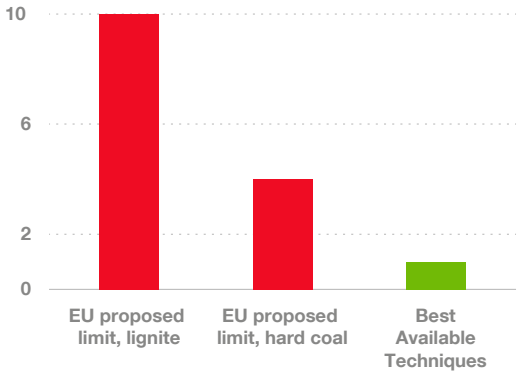
Sulphur dioxide (SO_2)



Nitrogen oxides (NO_x)



Particulate Matter (PM2.5)



Mercury (Hg)

Figure 3: EU proposed air pollution limits for coal plants compared to standards in line with best available techniques.
Source: European IPPC Bureau proposal (1 April 2015) and Greenpeace analysis.

The EU process has failed to consider the significant negative impacts and costs of weak air pollution limits, including premature deaths and avoidable diseases. Instead, the process has shied away from proposing emission limits that would require significant investments by power plant operators. In fact, the process has led to proposed limits which would allow many power plant operators to avoid retrofitting their plants entirely.

TIME FOR EU TO PICK UP ITS GAME

Greenpeace and the European Environmental Bureau are calling for a reform of the process and to ensure standards will serve as a driver for improved environmental performance. EU environment ministers, members of national parliaments, the European Commission and the European Parliament should intervene in the process to ensure:

- Emission limits are based on the best performing plants internationally.
- Economic and social costs of pollution to society are fully taken into account.
- The timely publication of best available technique definitions and emission limits for large combustion plants by January 2016 at the very latest.
- The implementation of emission limits by EU countries lead to equally robust standards for all power plants. Standards should be binding for all countries and not allow derogations.
- Binding, continuous measurement of mercury and other emissions for all categories of plants, in order to enable compliance checks.
- A transparent and impartial process that, excludes staff on the payroll of industries affected by the Industrial Emissions Directive in EU country expert delegations.

Coal pollution causes irreparable damage to the environment, people's health and communities around the world. The EU should lead the way in phasing out coal as part of a cost-efficient decarbonisation pathway towards a fully renewables-based energy system.

LIKELY SEVILLE PROCESS TIMELINE

- **June 2015:**
  The Technical Working Group (a body composed of government, industry and civil society experts) gives its opinion.
- **October 2015:**
  The Industrial Emissions Directive Forum (another expert body with member states, industry and NGO representatives) gives its opinion.
- **December 2015:**
  EU member state committee chaired by the European Commission (under so-called EU comitology rules) votes on the proposal by qualified majority.
- **February 2016:**
  Formal adoption of the standards by the Commission and publication in the official journal of the EU.
- **January 2016 to January 2020:**
  National implementation process (process depends on national law and procedures).
- **January 2020:**
  Deadline for application of new requirements at plant level.

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Endnotes

1 The research only assesses air related impacts and does not include the external costs of direct discharges of hazardous pollutants into water or other damages caused through the operation of coal power plants (e.g. through resource consumption or fuel extraction).

2 To quantify the health benefits of implementing tighter controls, Greenpeace and the European Environment Bureau commissioned modelling to compare health and economic impacts of proposed EU standards with standards that would instead be in line with best available techniques. The technical report is available at: http://gpurl.de/ToxicCoal -. The assessment is based on the methodology of the European Environment Agency report, Costs of air pollution from European industrial facilities 2008-2012, published in 2014: European Environment Agency 2014, Costs of air pollution from European industrial facilities 2008-2012, p.18-22: http://www.eea.europa.eu/publications/costs-of-air-pollution-2008-2012. Air pollutant emission data for coal-fired power plants reported by EU member states to the European Pollutant Release and Transfer Register (E-PRTR) was used to estimate current and future emission levels under different emission standards for each coal-fired power plant, based on its capacity and coal type.

3 Emission limits refer to the higher end of the emission performance range based on the definitions of best available techniques.

4 The costs are estimated at €5.98 bn per year in 2005 prices. Adjusting to 2014 price level and applying the 3% discount rate with no adjustment for increased willingness to pay due to higher future income levels, based on the EEA 2014 report, the present value of the health damages between 2020 and 2029 translates to €52.45 bn.

5 Greenpeace (April 2015), Smoke & Mirrors - How Europe's biggest polluters became their own regulators: http://www.greenpeace.org/eu-unit/en/Publications/2015/Smoke-and-Mirrors-How-Europes-biggest-polluters-became-their-own-regulators

6 University of Stuttgart research, commissioned by Greenpeace (2013), Silent Killers: http://www.greenpeace.org/international/en/publications/Campaign-reports/Climate-Reports/Silent-Killers/

7 WHO (2013), Outdoor air pollution a leading environmental cause of cancer deaths: http://www.euro.who.int/en/health-topics/environment-and-health/urban-health/news/news/2013/10/outdoor-air-pollution-a-leading-environmental-cause-of-cancer-deaths

8 Environment Health (2013), Economic benefits of methylmercury exposure control in Europe: Monetary value of neurotoxicity prevention: http://www.ehjournal.net/content/12/1/3/abstract

9 Bellanger et. al. (2013) Economic benefits of methylmercury exposure control in Europe: Monetary value of neurotoxicity prevention in Environmental Health 2013, 12:3 http://www.ehjournal.net/content/12/1/3

10 OECD (2012), OECD Environmental Outlook to 2050: The Consequences of Inaction, p.287: http://www.oecd.org/environment/indicators-modelling-outlooks/oecdenvironmentaloutlookto2050theconsequencesofinaction.htm