SMOKE & MIRRORS

How Europe's biggest polluters became their own regulators

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Updated version, published on 15 April 2015.

The new version reflects the revised proposal of the European IPPC Bureau of 1 April 2015.

Moreover, China's SO2 emission limit in key economic provinces was corrected from 100 to 50 mg/Nm^3.

The description of the scope of Japan's standards were corrected from coal to thermal power plants.

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Introduction

Coal causes irreparable damage to the environment, people's health and communities around the world. Coal-fired power stations are the largest source of sulphur dioxide and mercury emissions in Europe and one of the largest industrial sources of emissions of nitrogen oxides, arsenic, lead and cadmium. Air pollution from EU's coal-fired power stations caused an estimated 22,300 premature deaths in 2010[1], as well as exacerbating asthma and contributing to dangerous levels of mercury found in the blood of thousands of babies born in Europe.

In an attempt to reduce air pollution, the European Union is updating air pollution standards for industrial installations, including for coal power plants. In April 2015, the European Integrated Pollution Prevention and Control (IPPC) Bureau (an organisation hosted by the European Commission's Joint Research Centre)[2] published its proposed definitions of best available techniques (BAT), and the ranges of related emission levels that can be achieved. Various expert bodies will feed their own definitions of best available techniques and related emission ranges into the so-called "Seville process". The European IPPC Bureau will then issue a proposal that EU member states are expected to vote on by the end of 2015. Formal adoption by the European Commission and publication in the EU Official Journal should take place by early 2016. This process is mandated under the EU's Industrial Emissions Directive (IED).

EU member states will have four years to update legally binding environmental permits for coal-plants, based on BAT and related emission ranges. The highest value of the BREF emissions range is therefore the maximum emission level for coal plants and other installations from 2020 onwards. This report therefore refers to the highest value in the range as the "emission limit".

Based on the April draft proposal, this report demonstrates that **industrial air pollution performance standards currently considered by the European IPPC Bureau are much weaker than the standards in force in China, Japan and the United States.** The report also shows that existing coal power plants both within and outside the European Union already have much more demanding emission limits or better real-world emission control performance than would be required by the draft IPPC Bureau proposal. This makes it clear that the draft proposal would allow much more pollution than would result from the use of the best available techniques.

Part 1 of this report – "Smoke" – compares the considered EU air pollution standards with other countries.

Part 2 – "Mirrors" outlines the functioning of the EU decision-making process and demonstrates the process is strongly biased towards industry interests.

1 University of Stuttgart research, in Greenpeace (2013), Silent Killers: **http://www.greenpeace.org/international/Silent-Killers/**

2 For more information: **http://eippcb.jrc.ec.europa.eu/about/more_information.html**

PART 1

SMOKE

EU coal air pollution standards falling behind China, Japan and the United States

Air pollution standards under the Industrial Emissions Directive

The Industrial Emissions Directive is an EU law aimed at reducing air pollution from various industrial sources throughout the European Union. Industrial installations, including coal-fired power plants must have an environmental permit based on the requirements of the IED.

The permit includes binding emission limits (e.g. for sulphur dioxide, nitrogen oxides) based on what the Best Available Techniques (BATs) can achieve. The BATs are defined in so-called BAT reference documents (BREFs).

The preparation of the BREFs is co-ordinated by the European IPPC Bureau of the Institute for Prospective Technology Studies at the EU Joint Research Centre in Seville (Spain).

A new proposal for the BREF for Large Combustion Plants (LCP BREF) will be issued this year, defining emission limits for coal plants. This is the likely timeline for the process:

- **April 2015:** European IPPC Bureau released proposal with definition of BATs and air pollution limits.
- **1-19 June 2015:** Technical Working Group (a body composed of government, industry and civil society experts) gives its opinion.
- **July - September 2015:** The Industrial Emissions Directive Forum (another expert body with member states, industry and NGO representatives) gives its opinion.
- **January 2016:** Formal adoption by the European Commission after consultation with a member state committee (under so called EU comitology rules) and publication of the LCP BREF/BAT conclusions 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 by when the new requirements need to be applied at plant level.

Health impacts of coal plant air pollution

Exposure to toxic **particulate matter** (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[3]. PM2.5 was recently identified as a leading environmental cause of cancer deaths by the World Health Organisation's cancer agency[4].

Sulphur dioxide (SO_2), nitrogen oxides (NO_x) and dust emissions from coal-fired power plants all contribute to PM2.5 exposure – dust emissions directly, and SO_2 and NO_x through the formation of secondary sulphate and nitrate particles through chemical reactions in the atmosphere. These secondary particles make up a large portion of total PM2.5 mass in Europe[5]. Research by Stuttgart University commissioned by Greenpeace estimates that emissions from coal-fired power plants in the EU were responsible for 22,300 premature deaths in 2010[6]. Strict limits on air pollution from coal-fired power plants could significantly reduce this toll, saving the lives of thousands of Europeans.

Another coal-induced air pollution threat comes from **mercury.** Coal-fired power plants are the largest source of air emissions of toxic mercury in the EU and the largest source of mercury fallout into Europe. 200,000 babies are born each year in the EU with mercury levels that are known to harm their mental and neurological development[7].

© Lu Guang / Greenpeace

3 EEA (2007), Loss of statistical life expectancy attributed to anthropogenic contributions to PM2.5, 2000 and 2020: http://www.eea.europa.eu/data-and-maps/figures/loss-of-statistical-life-expectancy-attributed-to-anthropogenic-contributions-to-pm2-5-2000-and-2020

4 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

5 E.g. inorganic secondary particles make up half of total PM2.5 in Poland and the UK: Werner et al 2013. Differences in the Spatial Distribution and Chemical Composition of PM10 Between the UK and Poland. http://link.springer.com/article/10.1007/s10666-013-9384-0

6 Research by Stuttgart University in Greenpeace (2013) Silent Killers report: http://www.greenpeace.org/international/Silent-Killers/

7 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

How coal-fired power plants can make you sick

Coal-fired power plants expose people to toxic particles, ozone and heavy metals. The most serious health impacts are due to microscopic particles (PM2.5) formed from emissions of sulphur and nitrogen oxides, dust and soot. These particles penetrate deep into the lungs and into the bloodstream, causing deaths and numerous health problems.

MICROSCOPIC PARTICLES

OZONE

SULPHUR DIOXIDE (SO_2)

OZONE (O_3)

NITROGEN OXIDES (NO_x)

TOXIC METALS

SOOT AND DUST

ARSENIC

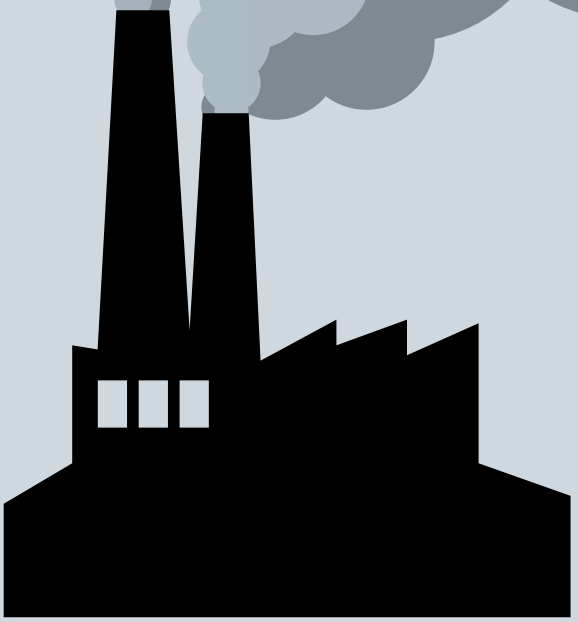
NICKEL

CADMIUM

LEAD

CHROMIUM

MERCURY



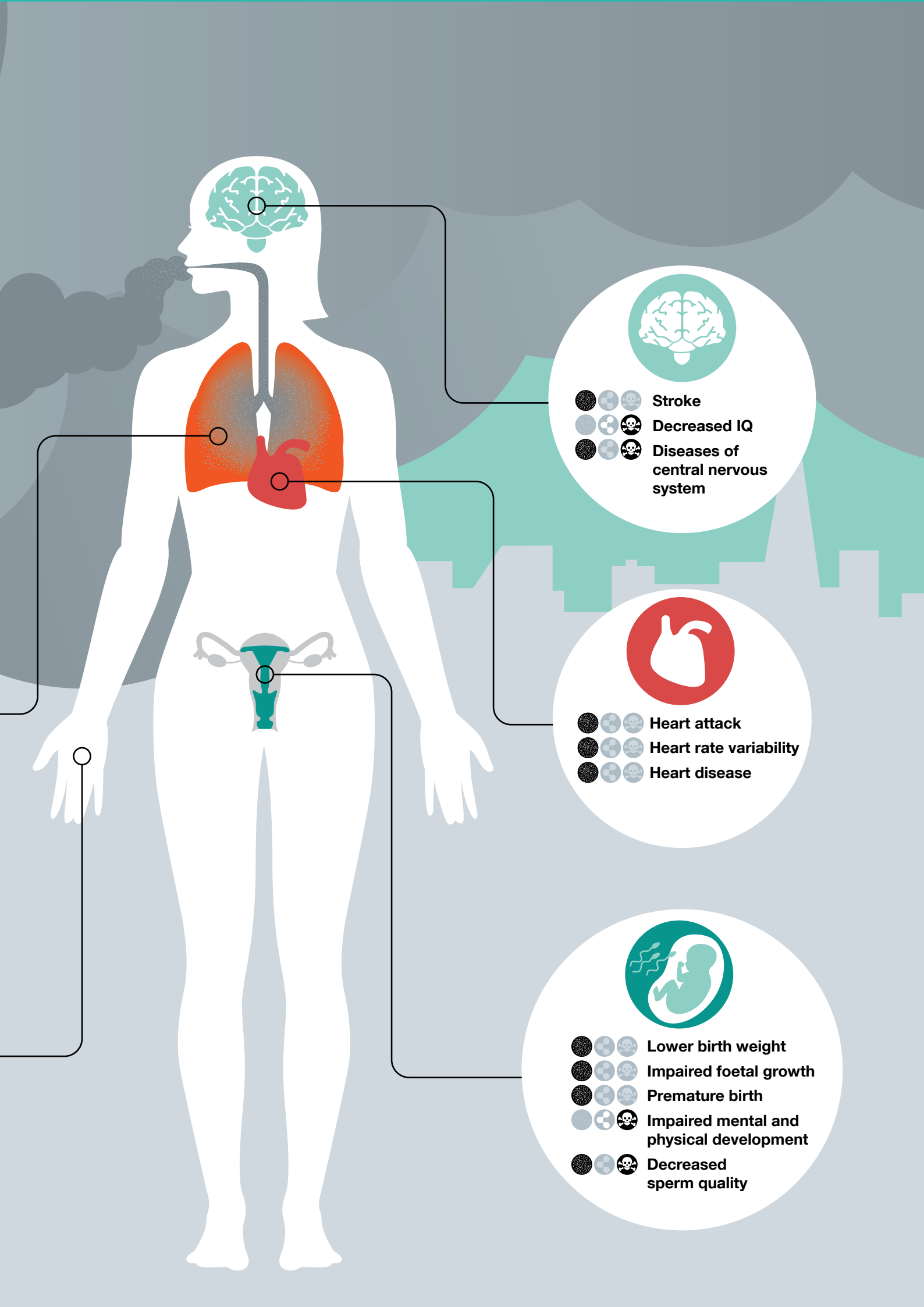
- Lung cancer
- Asthma attacks
- Infections and cough
- Impaired lung function
- Impaired lung growth in children

- Inflammation
- Increased coagulation
- Blood pressure

KEY

- Particle pollution
- Ozone
- Toxic metals

Source: Rückerl R et al (2011). Health effects of particulate air pollution: A review of epidemiological evidence. Inhalation Toxicology 23(10): 555–592; Pope III CA & Dockery DW (2006). Health Effects of Fine Particulate Air Pollution: Lines that Connect. J Air & Waste Manage. Assoc. 56:709 –742; US EPA: Six Common Air Pollutants. www.epa.gov/airquality/urbanair; US EPA: Integrated Risk Information System (IRIS). www.epa.gov/IRIS


Stroke
Decreased IQ
Diseases of central nervous system
Heart attack
Heart rate variability
Heart disease
Lower birth weight
Impaired foetal growth
Premature birth
Impaired mental and physical development
Decreased sperm quality

Countries with stricter power plant performance

Greenpeace has compared the emission limits for sulphur dioxide (SO_2), nitrogen oxides (NO_x), particulate matter (PM), and mercury (Hg) in the European IPPC Bureau draft proposal[8] with legal requirements and emission rates of best-performing power plants in China, Japan and the United States. As EU emission limit values are legally required to be in line with best available techniques, these examples should define the bare minimum of the EU's new limits.

Comparing the air pollution standards internationally

The draft European IPPC bureau proposal prescribes a range of emission limit values, but in practice the higher end of the range is applied by national regulation and regulators most of the time. Therefore our comparison looks at the highest allowed emission limit values in the draft IPPC bureau proposal.

Different countries base their standards on different time periods, ranging from hourly average to yearly average. This affects the actual emission levels resulting from a standard. If a power plant has to stay below a certain limit for every hour of the year, the operator has to leave room for hour-to-hour variation, resulting in a much lower annual average than if the same limit has to be met on yearly average basis.

Different countries also use different units: the U.S. generally sets limits based emissions per unit of electricity produced, while the EU and China regulate pollutant concentration per cubic meter of flue gas. Japan uses parts per million in flue gas, and uses slightly different reference conditions for flue gases. All limits are converted to the standards used in the EU to enable comparisons.

8 European IPPC Bureau: Best Available Techniques (BAT) Reference Document for the Large Combustion Plants Industrial Emissions Directive. 2010/75/EU. Draft proposal 1 April 2015.

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Sulphur dioxide (SO_2)

Draft EU standard: 130 mg/Nm^3 for existing plants, 75 mg/Nm^3 for new plants (annual average); 205 mg/Nm^3 for existing plants, 110 mg/Nm^3 for new plants (daily average)

China[9]: 50 mg/Nm^3 for existing plants and 35 mg/Nm^3 for new plants in key economic regions (hourly average, much more demanding than annual average); best performing operating plants 9-25 mg/Nm^3

Japan: National annual average of operating thermal power plants[10] is at 30-35 mg/ Nm^3

United States: Best performing operating power plants[11] 5-15 mg/Nm^3, national standard for new units[12] 50-60 mg/Nm^3; strictest permit condition for new plants[13] 22 mg/Nm^3 (30-day average)

Best performing plants in the EU: 20-60 mg/Nm^3 (annual average)

Coal-fired power plants are the largest source of SO_2 emissions in Europe. The draft EU standards considered by the European IPPC Bureau would allow significantly higher pollution levels than outside the EU.

On hourly average basis (as used in China), the EU's considered limit is 200 mg/Nm^3 for existing plants. China has recently required power plants totalling a capacity of over 200 GW – more than the entire coal energy capacity in Europe – to meet a limit of 50 mg/Nm^3 [14]. China will also require all new power plants in key economic regions to meet a limit of 35 mg/Nm^3.

There are several existing coal-fired power plants in Europe with SO_2 emission levels less than half of those required by the proposed standard[15].

9 Ministry of Environment 2011: Emission standard of air pollutants for thermal power plants (GB 13223-2011).

10 Calculated from
http://www.fepc.or.jp/english/library/energy_environment/__icsFiles/afieldfile/2011/02/22/kankyo_E_2010.pdf

11 Calculated from
http://www.fepc.or.jp/english/library/energy_environment/__icsFiles/afieldfile/2011/02/22/kankyo_E_2010.pdf

12 **http://www.epa.gov/airquality/powerplanttoxics/actions.html**

13 Permits for AES Puerto Rico and Dominion VCHEC.

14 The limit was brought down to 100 mg/Nm^3 for plants originally designed for emissions of 400-1200 mg/Nm^3. Ministry of Environment 2003: Emission standard of air pollutants for thermal power plants. GB13223 —2003.

15 Emission levels for European plants are calculated as yearly averages based on air pollutant and CO_2 emissions reported to the E-PRTR database. Average emission concentration is obtained as annual pollutant emissions divided by the total annual flue gas volume. The ratio of total standardized dry flue gas volume to CO_2 emissions is effectively constant, enabling this calculation to be carried out; the ratio is calculated as 3563 Nm^3/tCO_2 from EEA technical report 4/2008. Values reported are averages for 2010-2012.

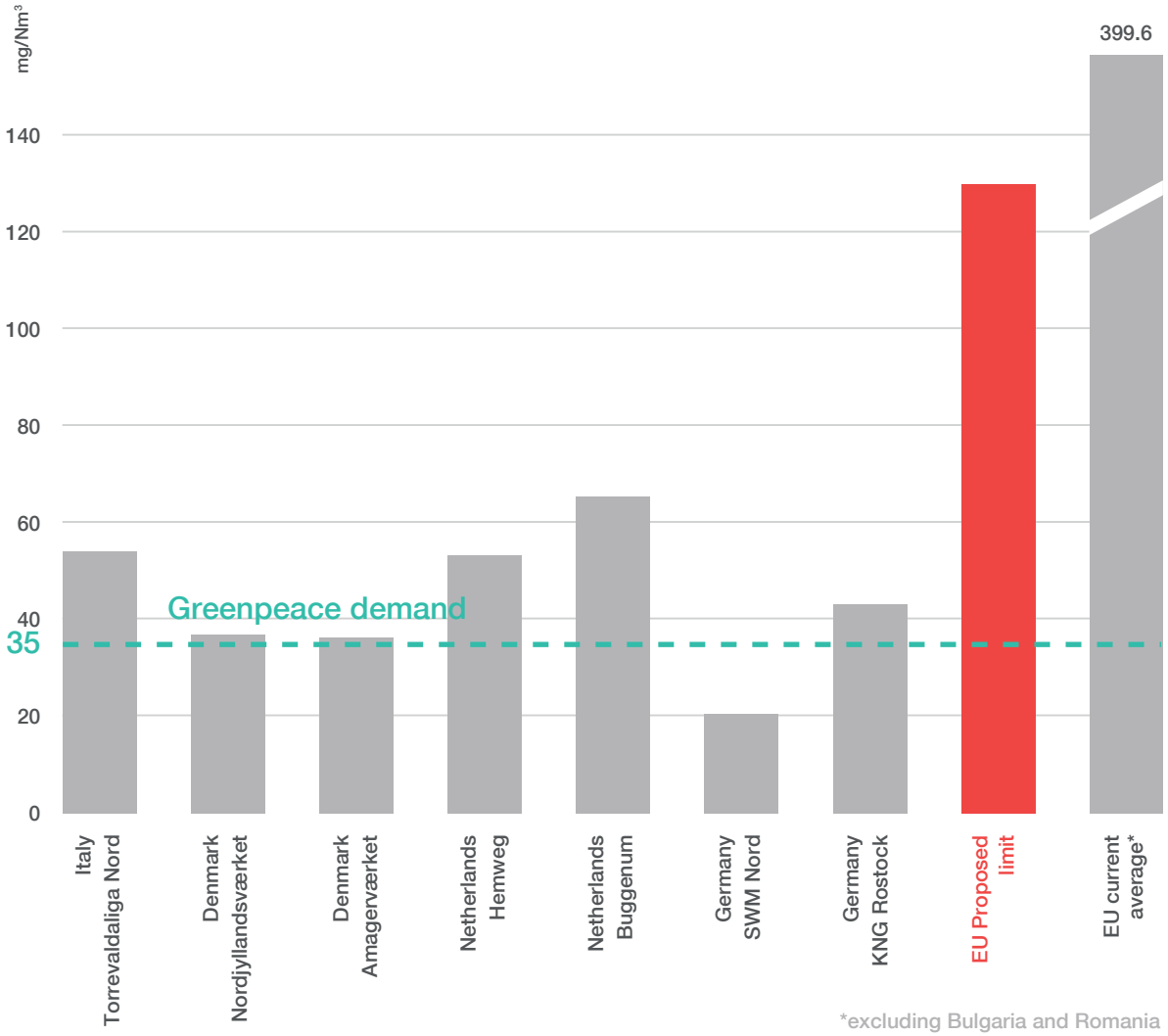


Figure 1: Examples of EU power plants with SO2 emissions far below the proposed standard

Source: European IPPC Bureau proposal (1 April 2015) and Greenpeace analysis. Emission levels for the plants are calculated as yearly averages based on air pollutant and CO2 emissions reported to the E-PRTR database.[16].

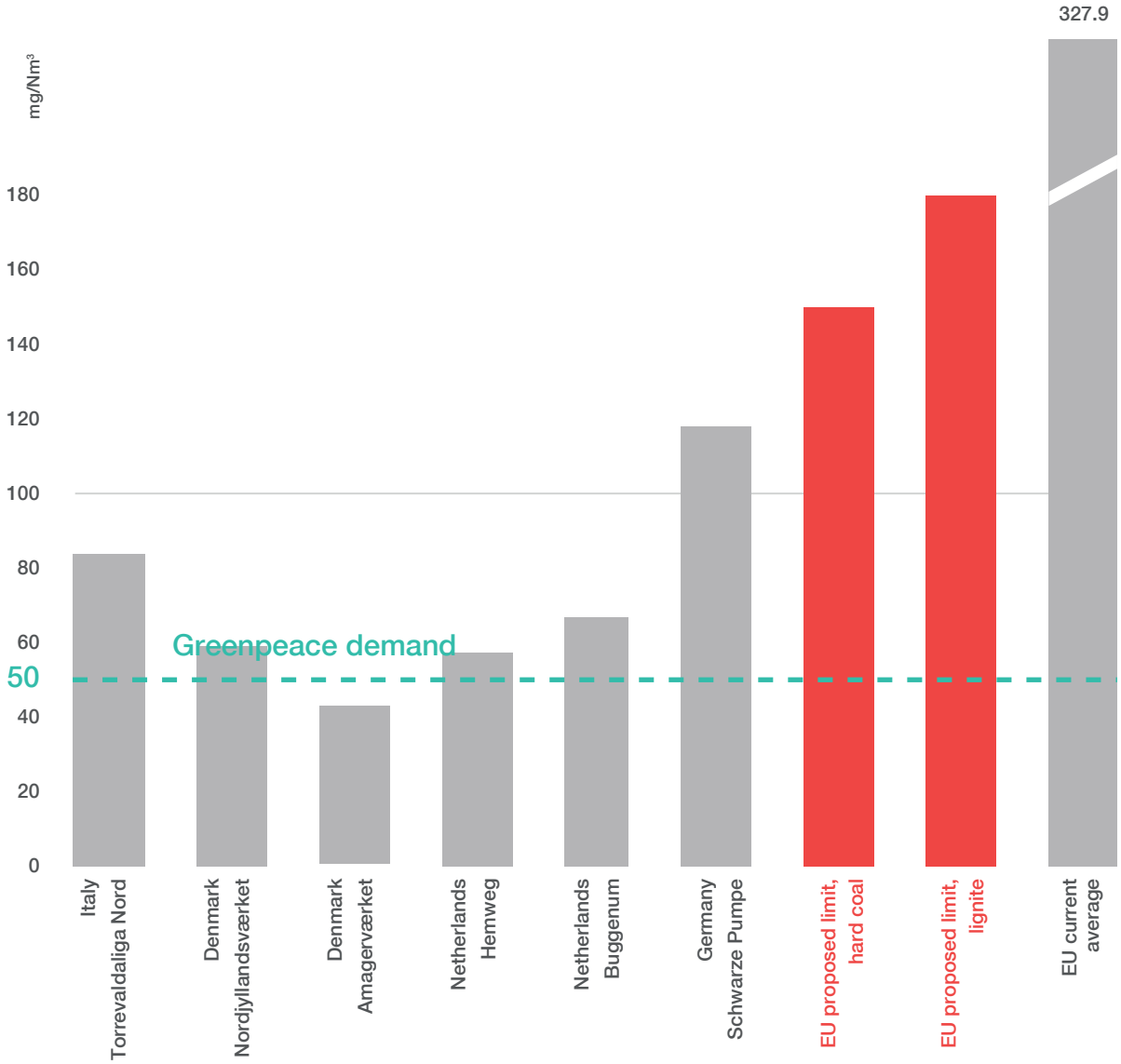


Figure 2: Examples of EU power plants with NOx emissions far below proposed standard

Source: European IPPC Bureau proposal (1 April 2015) and Greenpeace analysis. Emission levels for the plants are calculated as yearly averages based on air pollutant and CO2 emissions reported to the E-PRTR database[16].

Nitrogen oxides (NO_x)

Draft EU standard: 150 mg/Nm^3 for large[16] existing hard coal plants, 180 mg/Nm^3 for existing lignite plants, 85 mg/Nm^3 for new plants (annual average)

China: 100 mg/Nm^3 for existing plants, 50 mg/Nm^3 for new plants in key economic regions (hourly); best performing operating plants 30-50 mg/Nm^3 (annual average)

Japan: National annual average of operating thermal power plants[17]: 60-70 mg/Nm^3; strictest permit condition for new plant[18]: 40 mg/Nm^3

United States: Best performing operating power plants[19] 45-70 mg/Nm^3

Best performing plants in the EU: 50-80 mg/Nm^3 (annual average)

The NO_x limits considered by the European IPPC Bureau would allow many plants to avoid the installation of Selective Catalytic Reduction (SCR), the most effective way to control NO_x emissions. An important added benefit of installing SCR on coal-fired plants is a reduction in mercury emissions.

China is approaching an 80% penetration of NO_x control devices, predominantly SCR, and prescribes a 100 mg/Nm^3 emission limit. These devices were installed in power plants totalling a capacity of 130GW in 2013 alone – more than the EU's entire coal energy capacity[20]. New power plants in China's key economic regions, with 30% of its current coal-fired generation capacity, are required to meet a limit of 50 mg/Nm^3, which is lower than even the lower end of the 65-100 mg/Nm^3 range proposed for new power plants by the European IPPC Bureau.[21]

A significant number of existing coal-fired power plants operating within and beyond EU borders operates with much lower emissions than the emission limit considered in the European IPPC Bureau draft proposal. This makes it difficult to argue that the draft proposal is based on correct definitions of best available technology.

There are also several existing coal-fired power plants in Europe with NO_x emission levels less than half of those required by the proposed standard (see graph below).

The application of SCR is crucial to achieving low NO_x emissions. Documents obtained by Greenpeace UK under access to information laws show that lax emission standards are already leading to a failure to require coal-fired power plants with large NO_x emissions to install control equipment. Coal-power plant operator E.ON filed complaints with the UK regulator saying that other operators were gaining an unfair advantage by dropping investments against air pollution that E.ON had already undertaken at its UK plant.

16 Rated at 100 megawatts thermal or above (typically approximately 35 megawatts electric); plants between 50 and 100 megawatts have an even more lenient proposed limit.

17 Calculated from **http://www.fepc.or.jp/english/library/energy_environment/__icsFiles/afieldfile/2011/02/22/kankyo_E_2010.pdf**

18 **http://www.masterresource.org/2010/11/clean-coal-plant-today/**

19 Williams J., (2014). America's best coal plants, in: Power Engineering **https://www.advancedenergyforlife.com/sites/default/files/America%27s%20Best%20Coal%20Plants%20Power%20Engineering%20072114_0.pdf**

20 Chinese Ministry of Environmental Protection (2014), Annual Work Report on Reducing Emissions.

21 Chinese Ministry of Environmental Protection (2011), *Emission standard of air pollutants for thermal power plants. GB13223-2011*: **http://www.zhb.gov.cn/gkml/hbb/bgg/201109/W020110923323714233980.pdf** A partial summary is available at http://switchboard.nrdc.org/blogs/bfinamore/NRDC%20Unofficial%20English%20Summary.docx.

Particulate matter (PM)

Proposed limit: 16 mg/Nm^3 for large existing plants, 10 mg/Nm^3 for new (daily average basis)

Japan, best performing plants[22]: 4-5 mg/Nm^3

China, performance achieved through retrofit[23]: 5 mg/Nm^3

The proposed draft emission limits appear designed to enable power plants to forego the installation of the Best Available Technology for PM control: fabric filters (baghouses) with high removal efficiency. Baghouses are routinely required in, amongst others, Japan and the United States.

Baghouses also have a higher mercury removal efficiency than the more commonly used electrostatic particulate control devices.

Moreover, there are several existing coal-fired power plants operating in Europe with emission levels more than 75% below the proposed standard, exposing the claim that the proposal represents best available technology as false.

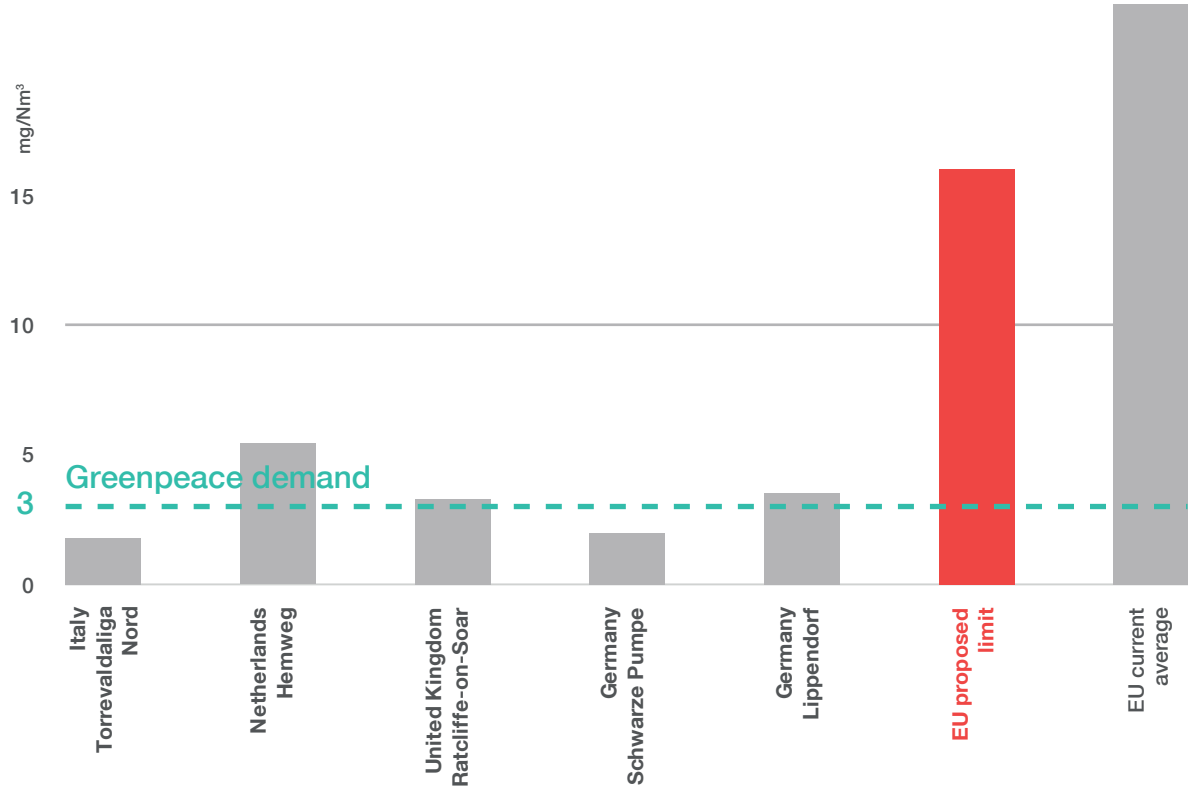


Figure 3: Examples of EU power plants with PM emissions far below proposed standard.

Source: European IPPC Bureau proposal (1 April 2015) and Greenpeace analysis. Emission levels for the plants are calculated as yearly averages based on air pollutant and CO2 emissions reported to the E-PRTR database.[16].

22 Hitachinaka, Hirono and Shin Isogo power plants. **http://www.neaspec.org/sites/default/files/S2_17pm_Matsuda(TEPCO).pdf; http://www.aecen.org/sites/default/files/isogo_brochure.pdf**

23 Guohua Sanhe 1 unit **http://energy.people.com.cn/n/2014/0818/c71661-25481657.html**

Mercury (Hg)

Draft EU standard for lignite: 10 µg/Nm^3 for existing plants, 4 µg/Nm^3 for new plants (annual average)

Draft EU standard for hard coal: 4 µg/Nm^3 for existing plants, 2 µg/Nm^3 for new plants (annual average)

U.S. hard coal: approximately 1.5 µg/Nm^3 for existing plants firing hard coal and 4.8 ug/Nm3 for existing plants firing lignite[24]. 0.5 µg/Nm^3 for new hard coal power plants[25] (30 or 90-day average); best performing lignite plants[26] with mercury capture: 0.9-1.2 µg/Nm^3

Canada: 1 µg/Nm^3 for new plants firing bituminous coal

Coal-fired power plants are the largest source of mercury emissions into the air in Europe. The mercury limits considered for the EU by the IPPC are so lenient that an estimated 85% of coal-fired power plants in the EU meet them already, including many of the power plants with the highest yearly emissions. Many more will meet the limits as a result of retrofitting to limit SO_2 and NO_x emissions. As a result, the estimated reduction in mercury emissions is approximately 30%. Around 10 tonnes of mercury will continue to be emitted from coal power plants each year.

The U.S. Environmental Protection Agency (EPA) recently set new mercury limits of approximately 1.5 µg/Nm^3 for hard coal and and 4.8 µg/Nm^3 for lignite for operating power plants, and 0.5 µg/Nm^3 for new hard coal power plants.[27]

Canada has also required much more stringent action, issuing regulation[28] in 2006 that mandated a 52-58% reduction in mercury emissions from coal plants by 2010, compared to 2003-2004 level, and requiring new power plants firing bituminous coal to meet a mercury emission limit of approximately 1 µg/Nm^3.

The European Environmental Bureau has also compiled data identifying twenty coal-fired power plants with mercury emission rates less than half of those required by the considered standard, despite not having mercury control requirements.

24 Existing coal-fired power plants in the U.S. can choose between different compliance strategies that regulate different pollutants. The default option is to comply with emission limits for particulate matter, hydrogen chloride and mercury, with the alternative being to comply with limits on SO_2 and a suite of 11 toxic metals, not including mercury. The mercury limits refer to the default compliance strategy, and are clearly levels that the U.S. EPA considers achievable in old power plants.

25 Environment Protection Agency 2013: 40 CFR Parts 60 and 63 [EPA–HQ–OAR–2009–0234; EPA–HQ–OAR–2011–0044; FRL–9789–5] RIN 2060–AR62. Reconsideration of Certain New Source Issues: National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units… **http://www.gpo.gov/fdsys/pkg/FR-2013-04-24/pdf/2013-07859.pdf**

26 Measurement data from Oak Grove 1 coal-fired unit obtained by Sierra Club: Luminant Power Jan 4, 2013: Mercury CEMS RATA Test Report Submittal; PowerMag Mar 1, 2014: The Role of Activated Carbon in a Comprehensive MATS Strategy. **http://www.powermag.com/the-role-of-activated-carbon-in-a-comprehensive-mats-strategy/?pagenum=3**

27 Environmental Protection Agency: 40 CFR Part 63. National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Steam Generating Units. Direct final rule. [EPA–HQ–OAR–2009–0234; FRL–9919–21–OAR]. RIN 2060–AS39. Conversions based on factors in EEA 2008: Air pollution from electricity-generating large combustion plants. Technical report No 4/2008.

28 Canadian Council of Ministers of the Environment 2006: Canada-wide standards for Mercury Emissions from coal-fired power generation plants **http://www.ccme.ca/files/Resources/air/mercury/hg_epg_cws_w_annex.pdf** Conversion as above.

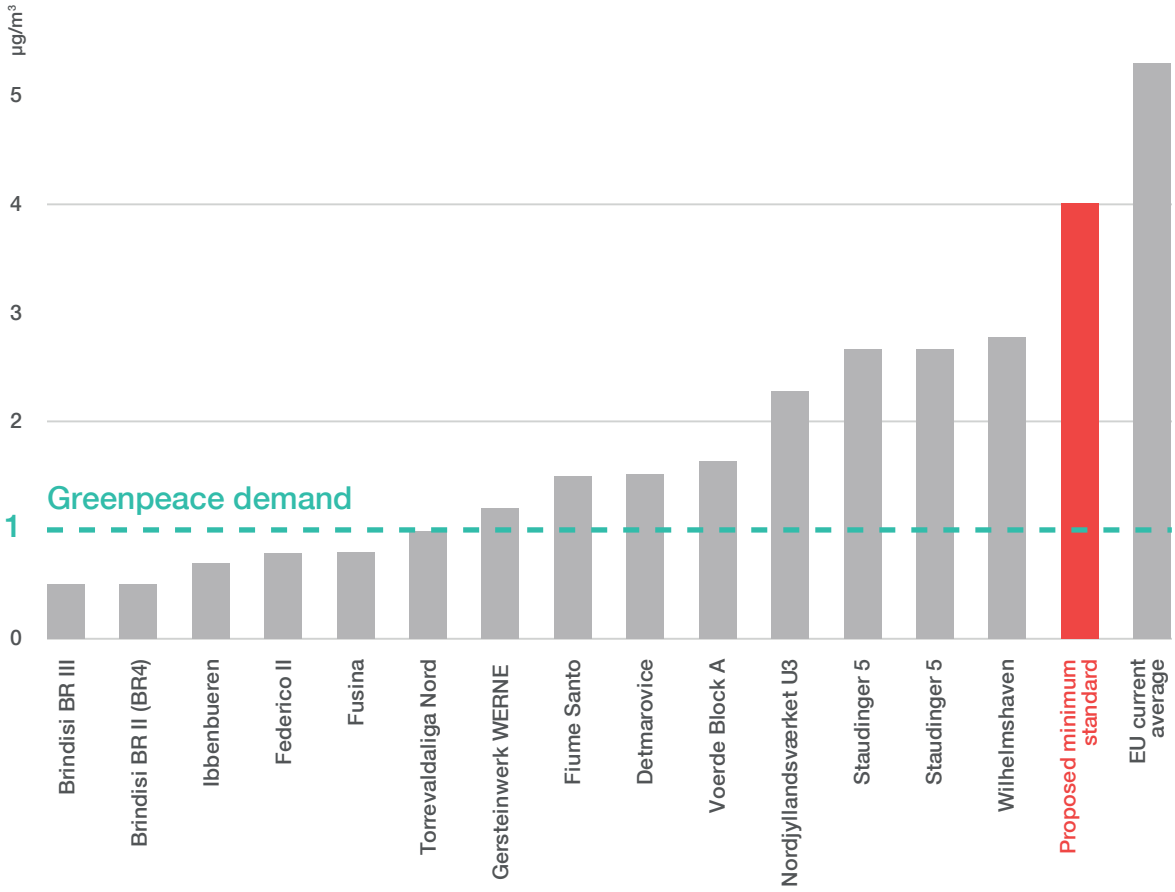


Figure 4: Examples of hard coal power plants in the EU with mercury emissions far below the proposed limits.*

Source: European IPPC Bureau proposal (1 April 2015) and Greenpeace analysis. Emission levels for the plants are calculated as yearly averages based on air pollutant and CO2 emissions reported to the E-PRTR database.

* An Italian power plant was removed from the graph on 6 March 2015 due to concerns about reliability of reported data

Moreover, the considered limit would not require well-established techniques to limit mercury emissions, such as activated carbon injection, that can reduce emissions further at low costs. Activated carbon systems are in use in numerous coal-fired power plants in the U.S.[29], and manufacturers of these systems are guaranteeing mercury capture rates of at least 90%[30], as compared to a typical capture rate of around 50% for a power plant with particulate matter controls and an SO_2 scrubber, but no dedicated mercury controls.

Importantly, the European IPPC Bureau draft does not require continuous monitoring of mercury emissions from mid-size power plants (<300MW) in an attempt to keep costs for power plant operators low. However, a lack of continuous measurement would undermine the enforcement of any mercury standards.

29 See e.g. **http://www.luminant.com/pdf/fact/mercurycontrol.pdf**

30 See e.g. **http://www.babcock.com/library/Documents/PS-452.pdf, http://www.calgoncarbon.com/media/images/site_library/355_MercuryRemovalBrochure-Jan2014-webL.pdf**

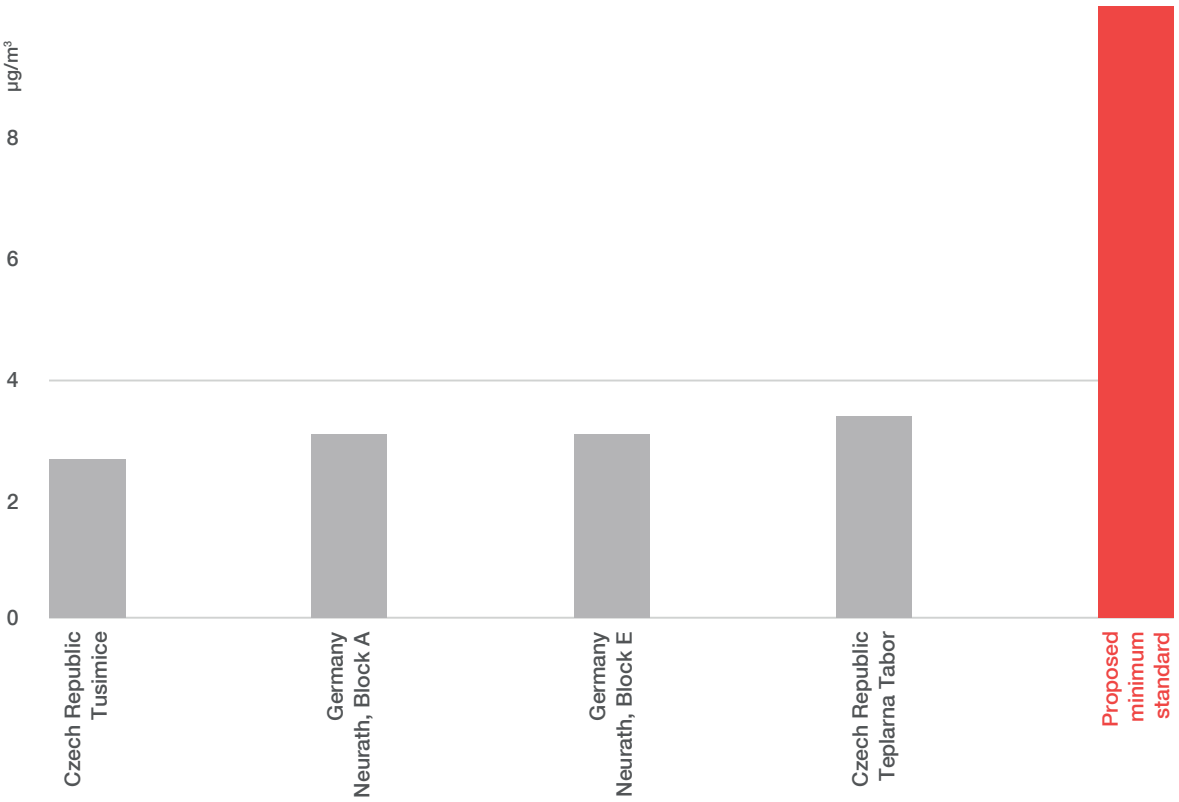


Figure 5: Examples of lignite power plants in the EU with mercury emissions far below the proposed limits.*

Source: European Environmental Bureau data compilation (2014).

* An Italian power plant was removed from the graph on 6 March 2015 due to concerns about reliability of reported data

Setting an almost meaningless mercury limit and labelling it as "Best Available" emission controls is all the more irresponsible in the context of the global mercury standards that will be defined under the Minamata Convention on Mercury[31] in 2015. The Minamata Convention standards will apply to other large mercury emitters that have signed the Convention. Lax EU mercury limits could set a dangerous precedent with global implications.

31 The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury.

Best performance examples in China

Looking beyond Europe's borders we also find a large number of power plants that perform better than the emission limits considered in the draft IPPC Bureau proposal.

Greenpeace collected emission measurements from thirteen Chinese coal-fired generating units at four different power stations[32]. These units originally had much higher emission levels, but have recently installed or upgraded emission control devices. They are representative of the hundreds of power plants that have been retrofitted in China in recent years. The EU's proposed new SO_2 and NO_x limits are 2-5 times as high as emission levels already achieved in China.

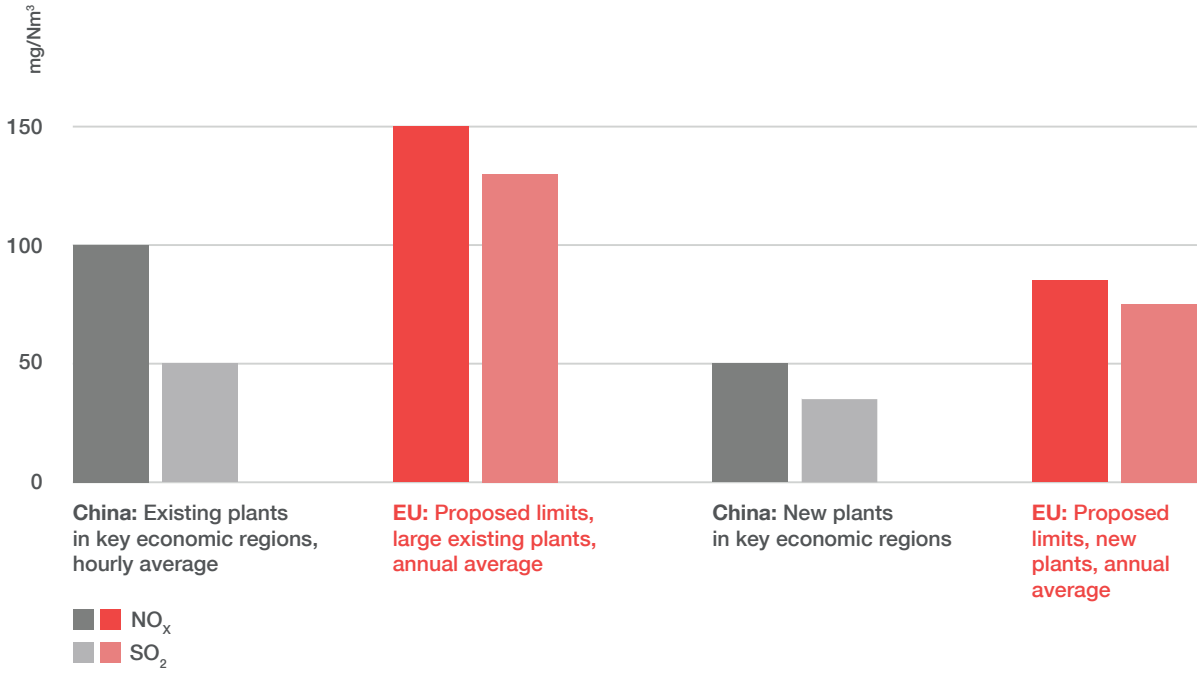


Figure 6: Comparing SO2 and NOx regulation in the EU and China.

Sources: European IPPC Bureau proposal (1 April 2015) and China's currently applicable national emission standards (GB13223-2011).

* Existing lignite plants in the EU are allowed to emit 180 mg/NM3 of NOx under the 1 April European IPPC Bureau proposal.

The widespread deployment in China of NO_x control technologies such as SCR has resulted in a significant number of Chinese plants with NO_x emissions lower than the considered EU emission limit.

32 The data was collected from 1 July 2014, when China's new emission standards came into force, until 15 December 2014. Sources for the data are **http://nmgepb.gov.cn:8088/enterprisemonitor/, http://app.zjepb.gov.cn:8089/nbjcsj/, http://202.136.217.188:8800/**.

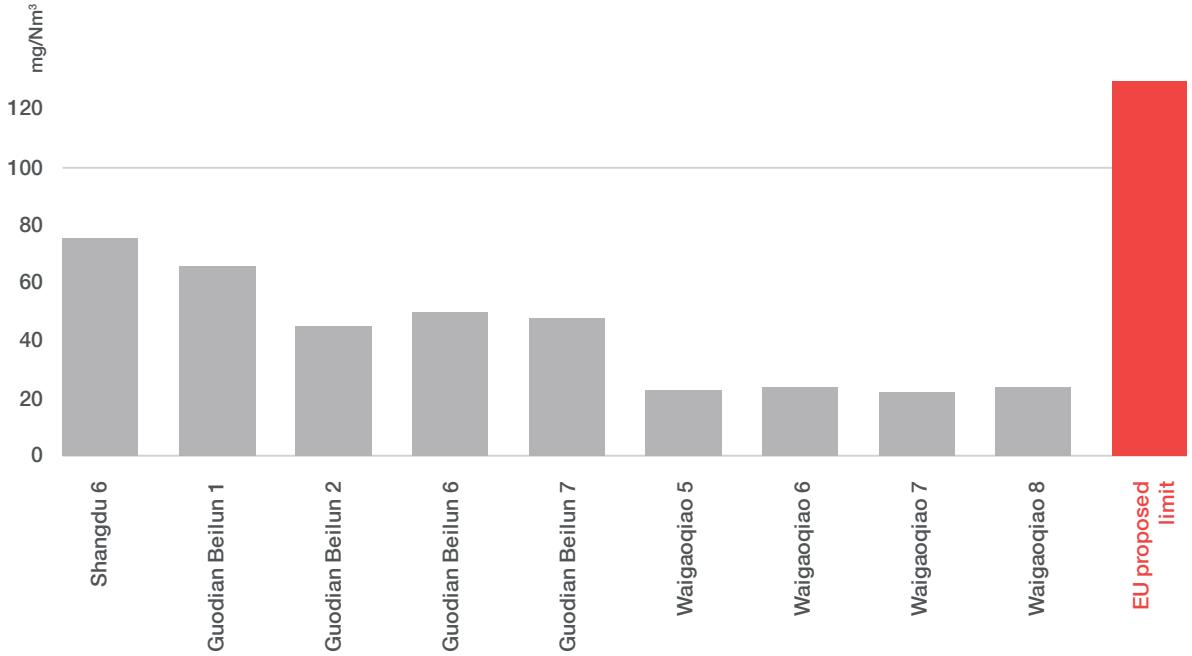


Figure 7: Average SO_2 emission levels of a number of power plants in China.

Source: Key industries' emission monitoring data platforms of the provincial Environmental Bureaus[33]. Data was compiled for the period from 1 July 2014 (China's new emission standards in to force) to 15 December 2014.

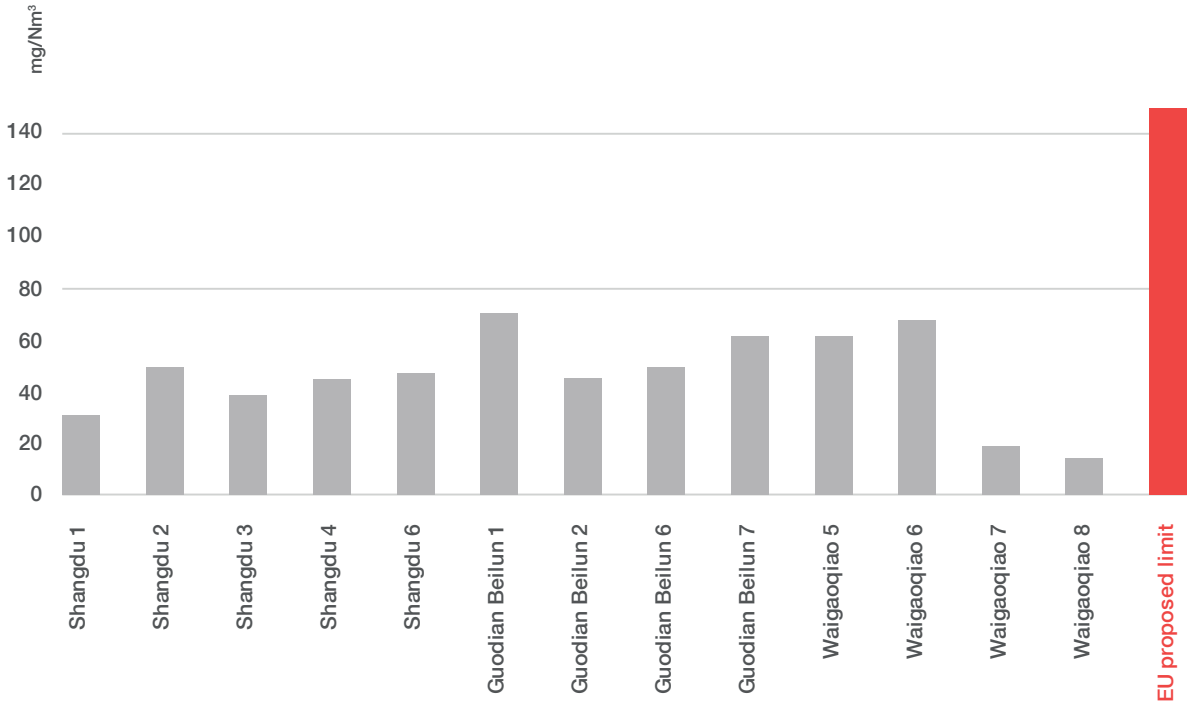


Figure 8: Average NO_x emission levels of a number of power plants in China.

Source: : Key industries emission monitoring data platforms of the provincial Environmental Bureaus[33]. Data was compiled for the period from 1 July 2014 (China's new emission standards in to force) to 15 December 2014.

PART 2

MIRRORS

Exposing industry bias in the EU's decision-making process on power plant pollution standards

Who decides and when?

The Industrial Emissions Directive (IED) is an EU law aimed at reducing air pollution from various industrial sources throughout the European Union. Industrial installations, including coal-fired power plants must have an environmental permit based on the requirements of the IED.

The permit includes binding emission limits (e.g. for sulphur dioxide, nitrogen oxides) based on what the Best Available Techniques (BATs) can achieve. The BATs are defined in so-called BAT reference documents (BREFs).

A new proposal for the BREF for Large Combustion Plants (LCP BREF) will be issued this year, defining emission limits for coal plants and other large industrial installations.

Below you find a description of the main decision-making bodies in the so called “Seville process” that leads to the adoption of the new LCP BREF, and an indicative timeline.

European IPPC Bureau

The preparation of the LCP BREF is co-ordinated by the European IPPC Bureau of the Institute for Prospective Technology Studies at the EU Joint Research Centre in Seville (Spain).

The European IPPC Bureau is located under the Sustainable Production and Consumption Unit, one of the seven scientific institutes of the European Commission’s Joint Research Centre (JRC).

Technical Working Group

The Technical Working Group is one of the most crucial bodies in the process. Proposals rejected by the Technical Working Group are unlikely to come back in the final European Commission decision.

The LCP BREF is elaborated by the Technical Working Group, which is chaired by the European IPPC Bureau. The finalised BREFs are adopted “under consensus” by the Technical Working Group members. If in the end the Technical Working Group does not reach consensus on an issue, the dissenting view is reported as “split views”. The Technical Working Group has 352 members, including representatives from EU member states, industries and NGOs.

Industrial Emissions Directive Forum

Under the Industrial Emissions Directive, the European Commission must regularly convene a forum composed of representatives of Member States, industry and non-governmental organisations and make publicly available the opinion of the forum.

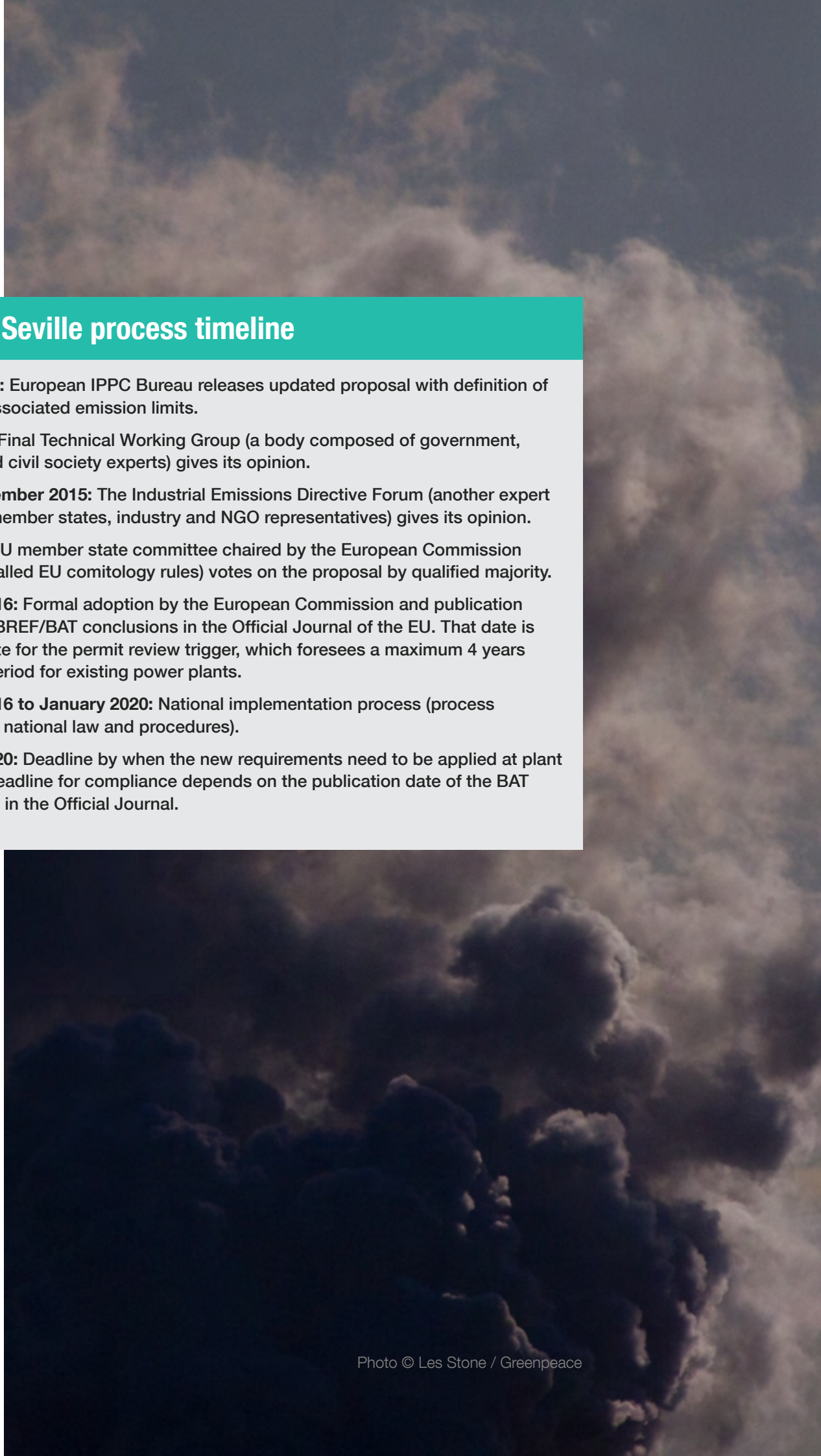
The Forum includes representatives from EU member states, industries and NGOs.

Member state committee

Before the European Commission puts forward the new best available technology definitions, and the related emission limits, the Commission asks a Committee of member state representatives to vote on the proposal (a so called vote on “implementing acts”). The vote takes place by qualified majority.

Indicative Seville process timeline

- **March 2015:** European IPPC Bureau releases updated proposal with definition of BATs and associated emission limits.
- **June 2015:** Final Technical Working Group (a body composed of government, industry and civil society experts) gives its opinion.
- **July / September 2015:** The Industrial Emissions Directive Forum (another expert body with member states, industry and NGO representatives) gives its opinion.
- **End 2015:** EU member state committee chaired by the European Commission (under so-called EU comitology rules) votes on the proposal by qualified majority.
- **January 2016:** Formal adoption by the European Commission and publication of the LCP BREF/BAT conclusions in the Official Journal of the EU. That date is the start date for the permit review trigger, which foresees a maximum 4 years transition period for existing power plants.
- **January 2016 to January 2020:** National implementation process (process depends on national law and procedures).
- **January 2020:** Deadline by when the new requirements need to be applied at plant level. The deadline for compliance depends on the publication date of the BAT conclusions in the Official Journal.



Industry bias in the process

A closer look at official member state delegations in the most important body, the Technical Working Group, chaired by the European IPPC Bureau, reveals that a large number of EU member states have appointed "experts" who are employed by the companies that are being regulated, or interest groups representing those companies.

Greenpeace found that a total of at least 46 representatives in government delegations are in fact industry lobbyists, on top of the 137 formal industry representatives participating.

The most striking example is the **Greek** delegation. The seven-member delegation is entirely made up of representatives of Public Power Corporation, the operator of some of the dirtiest lignite power plants anywhere in the EU, and Hellenic Petroleum.

Poland's six-person delegation includes three representatives of coal power plant operators (including PGE and EDF Polska).

The **Croatian** member state delegation is composed of six people: two from coal power plant operator HEP, four from the Croatian Chamber of Commerce.

The **Czech Republic** delegation is dominated by representatives from the ministry of industry and trade and also includes representatives from power company CEZ, which has been fiercely lobbying against tighter emission limits under the Industrial Emissions Directive.

The **Estonian** delegation also comprises a representative from Eesti Energia AS, operator of very polluting oil shale power plants.

Slovakia's six-person Member State delegation includes four employees of power plant operators from CM European Power Slovakia, ENEL and Slovenské energetické strojárne.

The **Spanish** twelve-person delegation includes eight industry representatives, including coal power plant operators Endesa and Iberdrola, as well as the electricity producers' association UNESA.

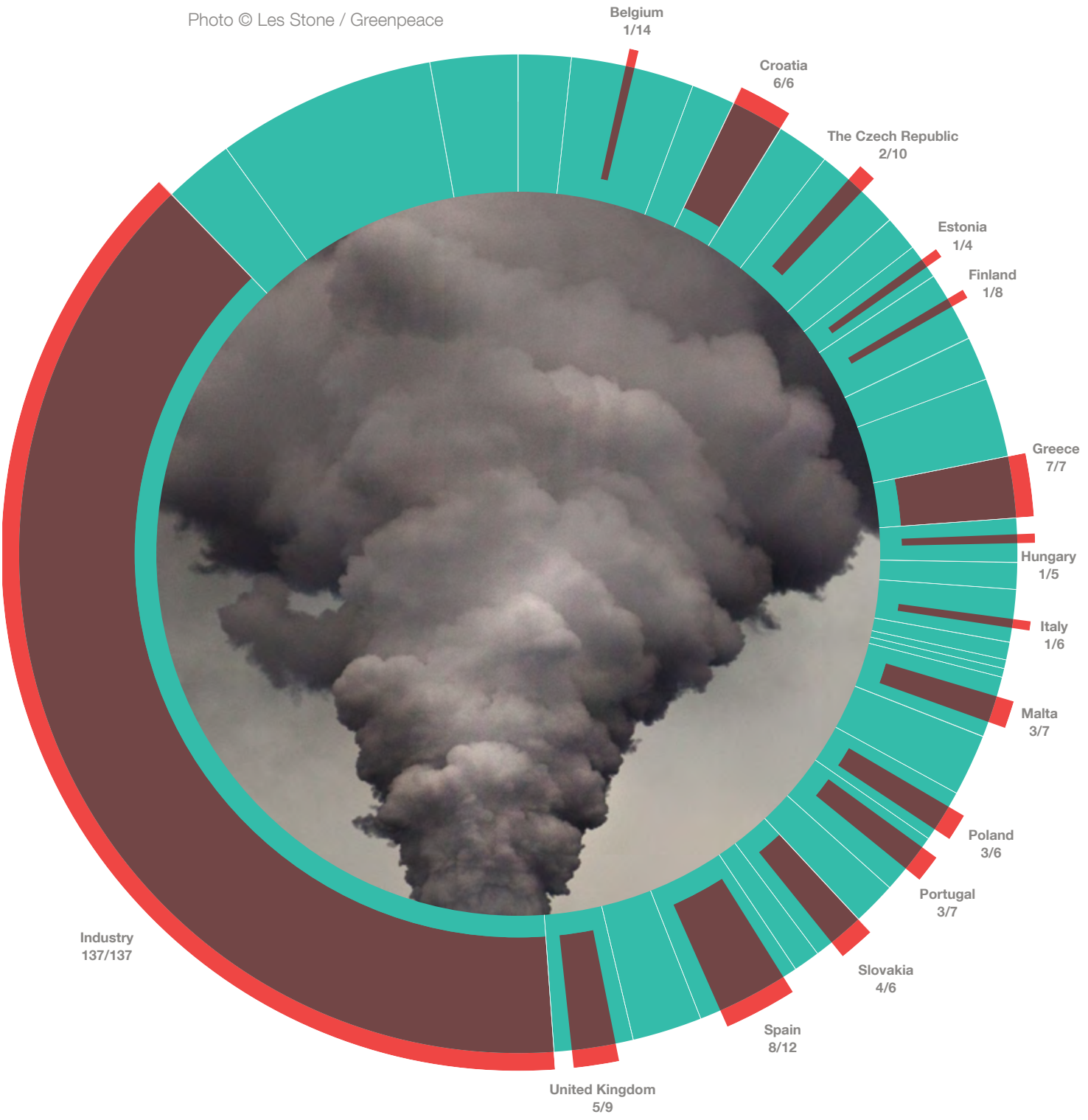
The **United Kingdom** nine-person member state delegation has five representatives of large polluters, including coal power plant operators RWE, EDF and E.ON and the Stanlow oil refinery.

Portugal nominated an employee of coal power plant operator EDP Energia as one of three industry representatives in their seven-strong delegation.

Country	Polluters represented in delegation
Czech Republic	CEZ Group (2 people)
Estonia	Eesti Energia
Finland	Finnish Energy Industries
Greece	Hellenic Petroleum
Greece	Public Power Corporation (DEI) (6 people)
Hungary	Hungarian Power Companies Ltd. (MVM Zrt) (2 people)
Italy	Assoelectrica.it (Italian Energy industry)
Malta	Enemalta Corporation (3 people)
Poland	Polish Energy Partners (Mondigroup)
Poland	PGE Gornictwo i Energetyka Konwencjonalna S.A
Poland	EDF Polska
Portugal	Turbogas
Portugal	Tejo Energia SA
Portugal	EDP Energia SA
Slovakia	Slovenské energetické strojárne
Slovakia	Slovenské elektrárne, a.s., subsidiary of ENEL
Slovakia	CM European Power Slovakia (2 people)
Spain	Gas Natural SDG S.A (2 people)
Spain	Elcogas
Spain	Endesa (2 people)
Spain	IBERDROLA
Spain	HCEnergia.com
Spain	UNESA
UK	E.ON New Build&Tech (2 people)
UK	RWE Power
UK	EDF Energy
UK	Stanlow refinery

Overview of the representation of polluting industry in the technical working group

Photo © Les Stone / Greenpeace

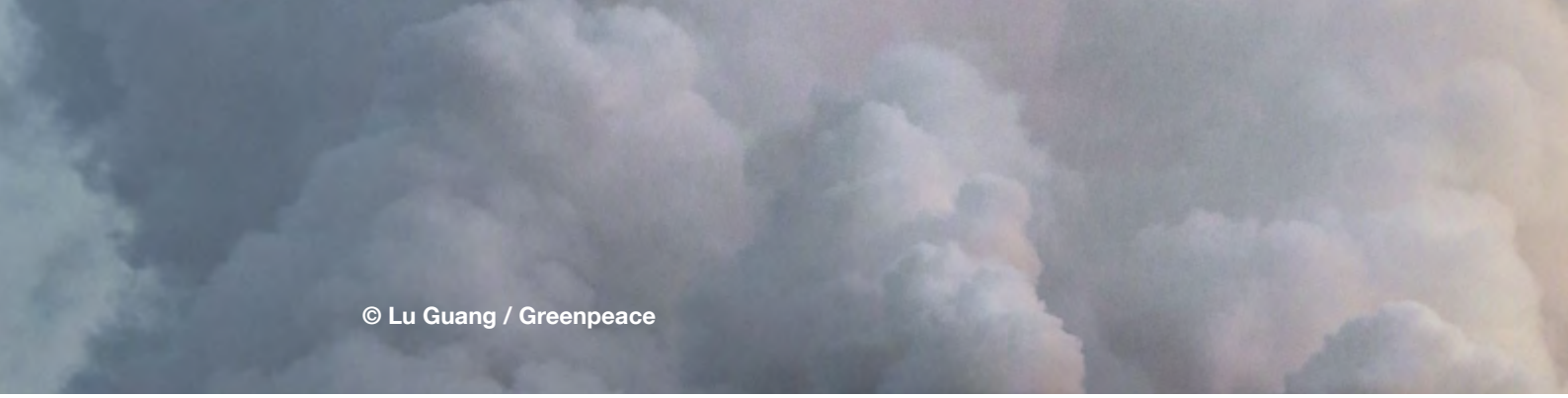


Total number of representatives

Number of industry-paid representatives in the delegation

This chart illustrates the penetration of the Technical Working Group by employees of polluting industries. In addition to a very large share of places in the working group being directly allotted to industry, many member states delegated their official representation to their biggest national polluters. Red segments indicate the share of members in each delegation who are employees of polluting industries.

Country/Organization	Total number of representatives	Number of industry-paid representatives in the delegation
AUSTRIA	6	
BELGIUM	14	1
BULGARIA	5	
CROATIA	6	6
CYPRUS	6	
THE CZECH REPUBLIC	10	2
DENMARK	4	
ESTONIA	4	1
FINLAND	8	1
FRANCE	5	
GERMANY	9	
GREECE	7	7
HUNGARY	5	1
IRELAND	3	
ITALY	6	1
LATVIA	2	
LITHUANIA	1	
LUXEMBURG	1	
MALTA	7	3
THE NETHERLANDS	7	
POLAND	6	3
PORTUGAL	7	3
ROMANIA	5	
SLOVAKIA	6	4
SLOVENIA	3	
SPAIN	12	8
SWEDEN	8	
UNITED KINGDOM	9	5
Industry	137	137
Environmental NGO	8	
European Commission	25	
Non-Member Countries	10	
Total	352	183



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Copy-paste

Even several of the genuinely independent EU country representatives have been known to regularly advocate the positions of polluting companies and interest groups, often using statements directly copied from industry representatives.

In a particularly blatant case, delegates from Spain's ministry of environment and Ireland's Environmental Protection Agency argued for weaker emission limits using a statement that was identical to a comment tabled by power company lobby group Eurelectric[33]. A representative of Bavarian Environment Agency in Germany's delegation demanded weaker NO_x emission limits for lignite plants, with a written comment identical to ones posted by several industry representatives. A representative of the UK Environment Agency used a written comment identical to ones made by Eurelectric and RWE to argue that certain energy efficiency techniques were too expensive.

Which delegations weaken standards?[34]

Analysing the written comments filed by member state delegations gives a good picture of which delegations are the driving force behind weak standards. Seven delegations – those of Poland, the Czech Republic, Greece, Germany, France, the UK and Spain – are responsible for the vast majority of comments seeking to further weaken the limits. Several of these countries – particularly Poland, the Czech Republic, Germany and Greece – are among the largest sources of coal-fired power plant pollution in Europe, causing significant health impacts and costs on their citizens and on the citizens of neighbouring countries.

While these countries are actively seeking to protect their license to pollute, very few countries made efforts to strengthen the standards. Sweden, the Netherlands and Austria were the only countries to consistently seek to protect public health.

SO_2 and NO_x emissions

The Polish delegation has opposed any strengthening of emission standards on the grounds that meeting lower limits is too expensive (regardless of the fact that China, with much lower income per capita, is requiring substantially stricter standards).

The German representatives have opposed stronger SO_2 and NO_x limits for lignite power stations. The delegations of France, Poland, Czech Republic and Greece have opposed strengthened SO_2 limits across the board, while that of Italy has opposed the limits for mid-sized and large power plants. The delegates from Czech Republic, Poland, Greece, Bulgaria, Spain and Estonia have pushed for even weaker SO_2 limits for power plants burning exceptionally dirty coal, which could have a very significant impact on total SO_2 emissions in Europe. The Spanish representatives have also tried to further weaken proposed NO_x limits.

The delegations of the UK, Spain and the Czech Republic want to introduce a weaker minimum limit for NO_x, while that of Italy wants to weaken the maximum end of the limit range proposed in the draft "best available technology" document. The Greek

33 A representative of the Spanish Ministry of Environment, a representative of Ireland EPA and a representative of Eurelectric all argued for weaker emission limits using the exact same passage, word-for-word and letter-for-letter.

34 This section is based on Greenpeace analysis of written comments submitted by representatives of EU Member States to the first draft of the BREF (published in July 2013)

representation has tried to weaken the NO_x limits for lignite, to introduce exemptions for installing NO_x controls, and to oppose the application of even the weak considered SO_2 and NO_x standards for lignite power stations. The delegation of the Czech Republic wants to introduce exemptions to the values for all pollutants for plants that have already made investments to comply with earlier emission requirements. The French delegation wants to weaken NO_x emission limits for new coal-fired power plants and has questioned the proposed SO_2 limits for new plants.

Mercury emissions

The delegations of Spain and Poland pushed for the general removal of mercury limits. The delegations of the Czech Republic and Portugal want to weaken even very weak mercury limits. That of Greece wants to further weaken mercury limits for operating and new lignite plants. France wants to weaken the stricter end of the limit range.

The Czech Republic, Spain, UK, France, Poland and Greece delegates have opposed continuous monitoring of mercury emissions. Italy has called for additional assessments on the measurement of mercury emissions, with the clear intention of weakening or eliminating requirements for continuous monitoring.

The UK and Spain have opposed mercury controls, while Poland has opposed them on the grounds that they are not economically viable.

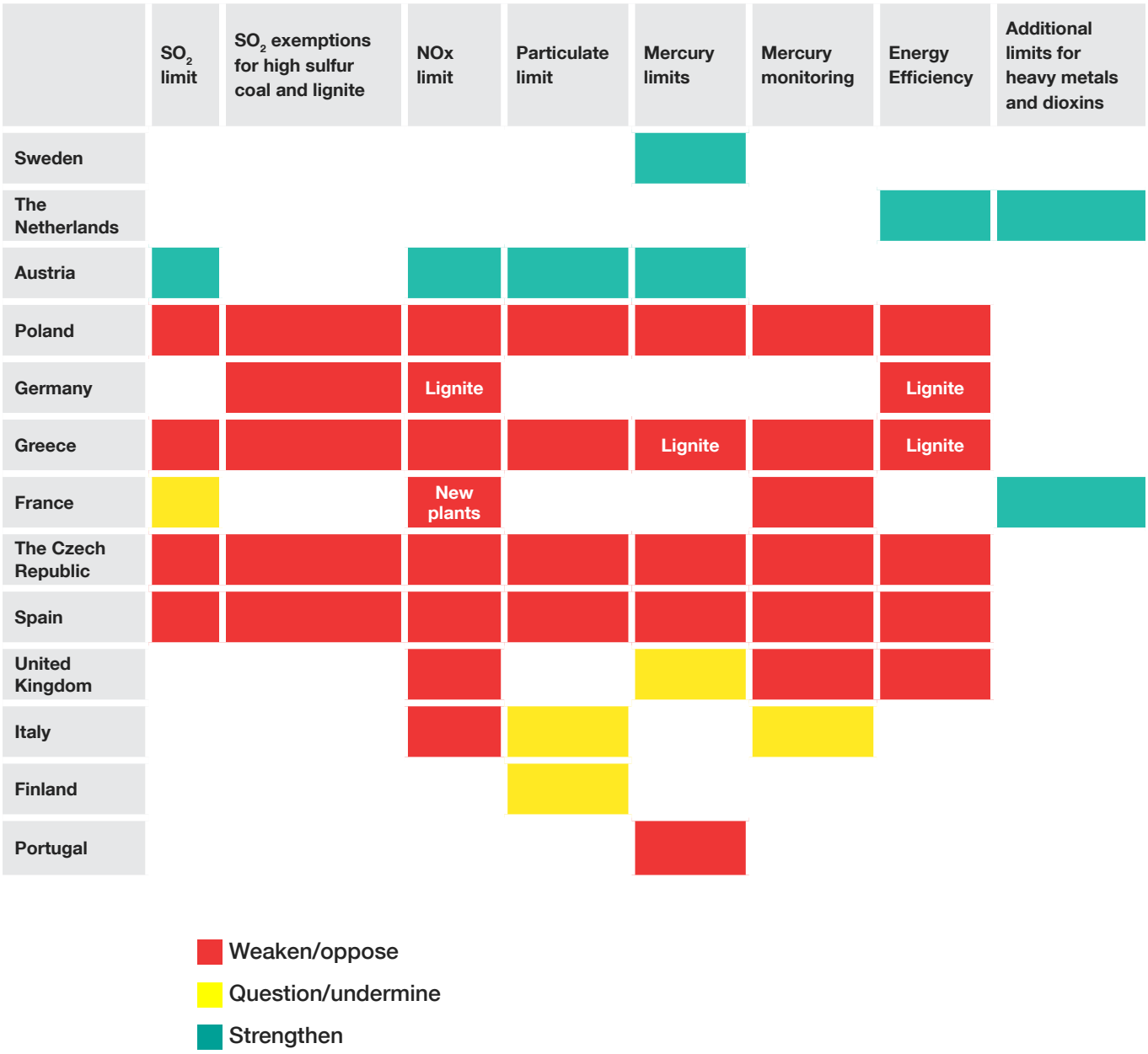
Energy efficiency

The delegations of Germany, Poland and Greece have opposed energy efficiency improvements in lignite power plants, while those of Spain, Poland, the Czech Republic and the UK have opposed these measures for all coal power plants. Energy efficiency would reduce both CO_2 and air pollution emissions.

The Polish representatives have argued in favour of a power plant thermal efficiency of 60% higher CO_2 and air pollution emissions than most efficient plants today. Greece already allows 40% higher emissions than most efficient plants and also opposed strong measures.

Austria was one of very few countries to appeal for stronger NO_x limits. Sweden and Austria have proposed more stringent limits for mercury, while the Netherlands asked for stronger efficiency targets. Austria and France also supported standards for better enforcement, while France and the Netherlands backed emission limits for toxic metals beyond mercury, as well as for dioxins and furans.

Overview of some of the EU member state delegation positions



Conclusions

Time for EU decision-makers to intervene

Greenpeace is deeply concerned that the health of European citizens and best available air pollution control technologies are not being properly taken into account in EU decisions to set emission limits for coal plants.

We call on EU environment ministers, members of national parliaments and the European Parliament to intervene in the Seville process and beyond, and to take the following actions:

- Ensure timely adoption: publication of best available technique definitions and emission limits for large combustion plants should take place by January 2016 at the very latest.
- Make standards robust: the implementation of the BREF by member states should provide a level playing field for power plant operators in the European Union by setting equally robust standards for all power plants; standards should be binding for all member states and not allow derogations.
- The BREF and related emission limit values should be based on the truly best international performers:

	Existing plants	New plants
Sulphur dioxide (SO_2)	<35 mg/Nm^3	**<20 mg/Nm^3**
Nitrogen oxides (NO_x)	<50 mg/Nm^3	**<40 mg/Nm^3**
Particulate Matter (PM)	<3 mg/Nm^3 (ANNUAL) <8 mg/Nm^3 (DAILY)	**<3mg/Nm^3** (DAILY)
Mercury (Hg)	<1 µg/Nm^3	**<0.5 µg/Nm^3**

- Prescribe continuous measurement of mercury emissions at mid-sized and large industrial installations (in addition to continuous measurement of other pollutants), including coal-fired plants, in order to allow regulators to check compliance.
- Stop conflicts of interests: exclude staff on the payroll of industries affected by the Industrial Emissions Directive from EU member state delegations in the decision-making process.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