

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

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HEAL: 70 members from 30 countries



“COAL IS THE SINGLE GREATEST
THREAT TO CIVILISATION AND
ALL LIFE ON OUR PLANET”

Climate scientist **James Hansen**



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that contributes to good health*

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

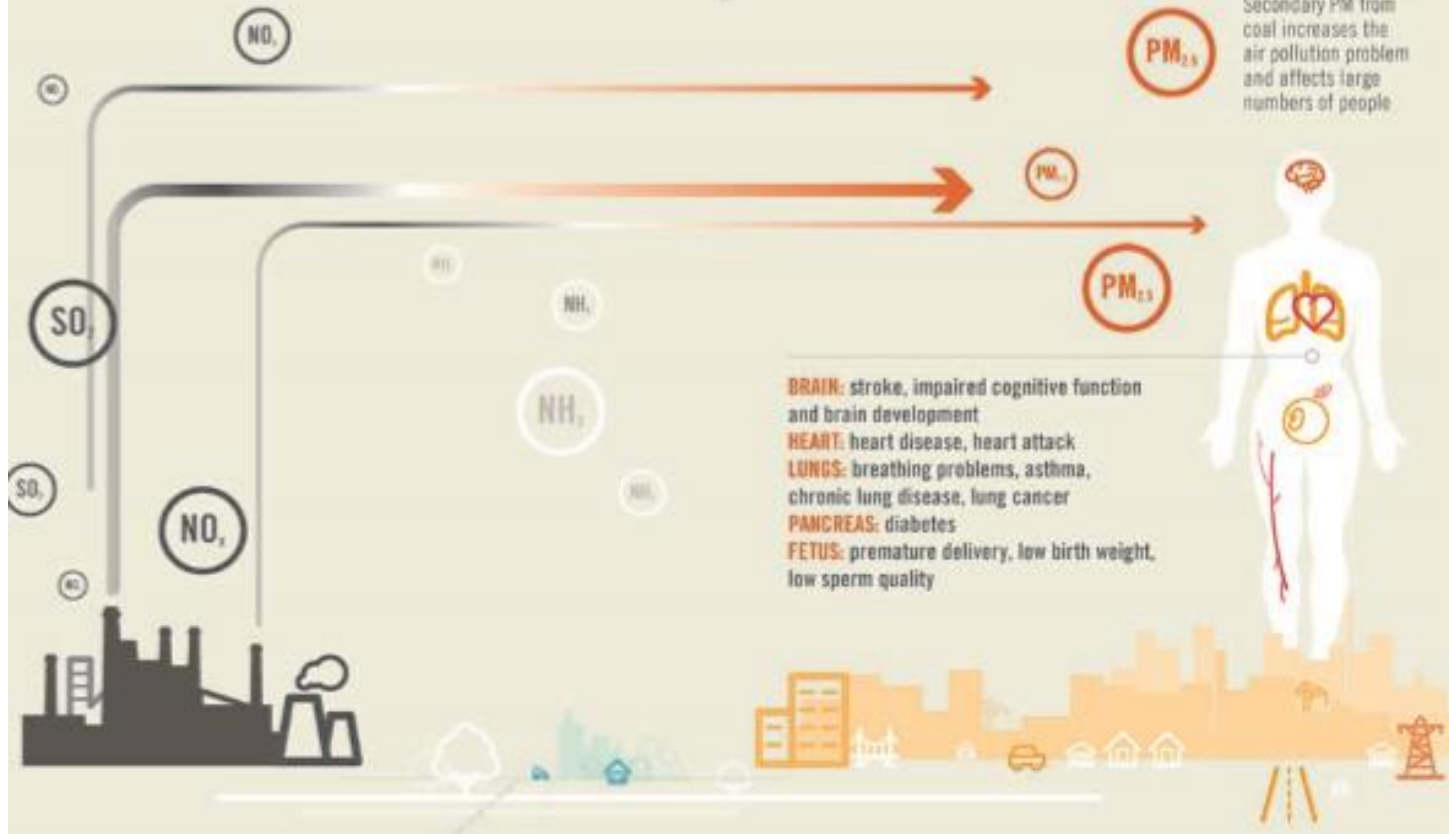
HOW COAL EMISSIONS AFFECT HUMAN HEALTH

THROUGH SECONDARY PARTICULATE MATTER

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



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



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Coal's impact on the human body

COAL'S IMPACTS ON THE HUMAN BODY

HEALTH IMPACT OF PARTICULATE MATTER
EMISSIONS FROM COAL-FIRED POWER PLANTS³⁶



Short-term (hours to days):

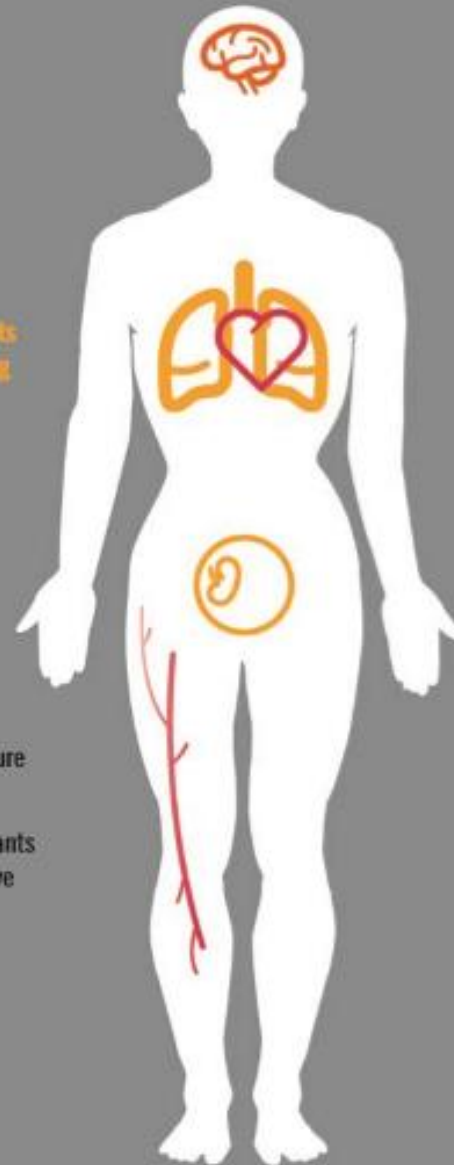
- Cardiovascular & respiratory hospital admissions
- Restricted activity days
- Work days lost
- Incidence of asthma symptoms in asthmatic children & adults
- Higher death rates
- Reduced lung function

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



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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.**



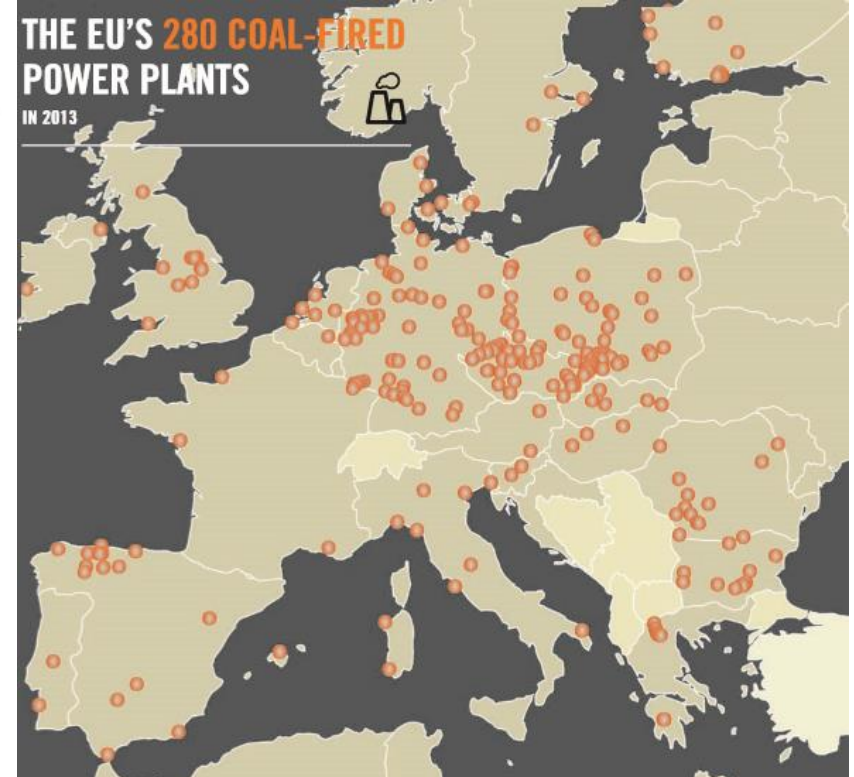
Europe's Dark Cloud

EUROPE'S DARK CLOUD

HOW COAL-BURNING
COUNTRIES ARE MAKING THEIR
NEIGHBOURS SICK



sandbag



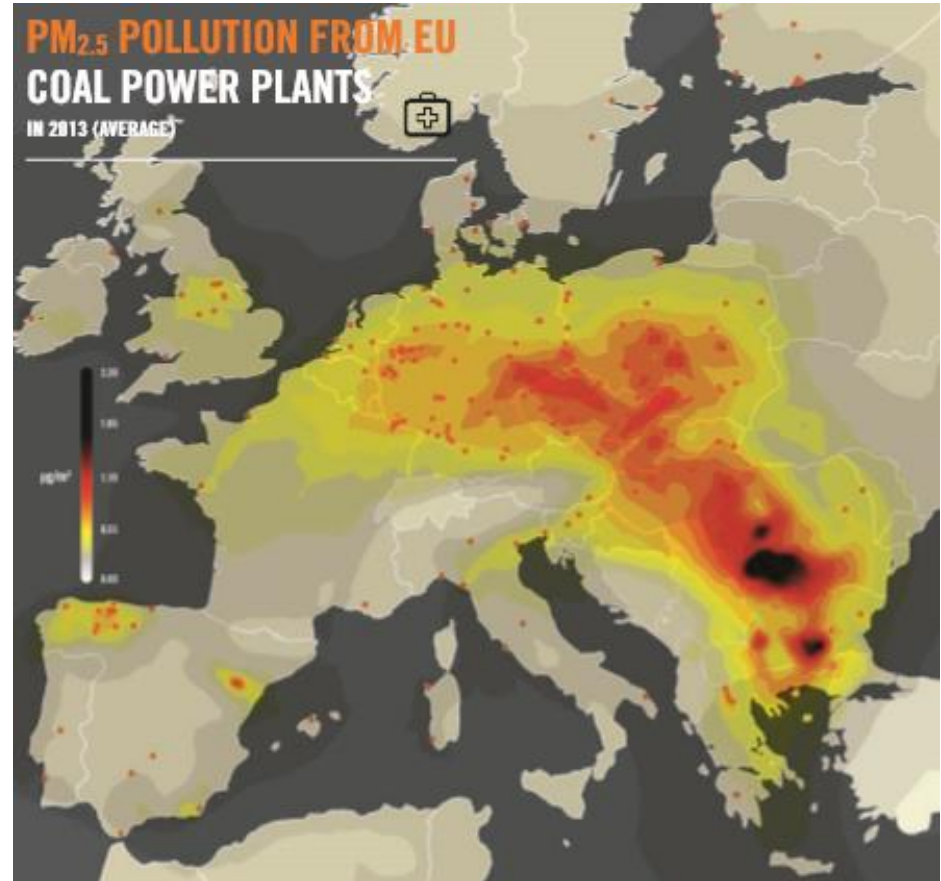
First ever analysis of **of cross-border health impacts of air pollution from coal use in electricity generation** in the European Union.



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

Europe's Dark Cloud

- 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.

OVERVIEW OF PREMATURE DEATHS* LINKED TO COAL PLANTS ACROSS EUROPE IN 2013

LEGEND

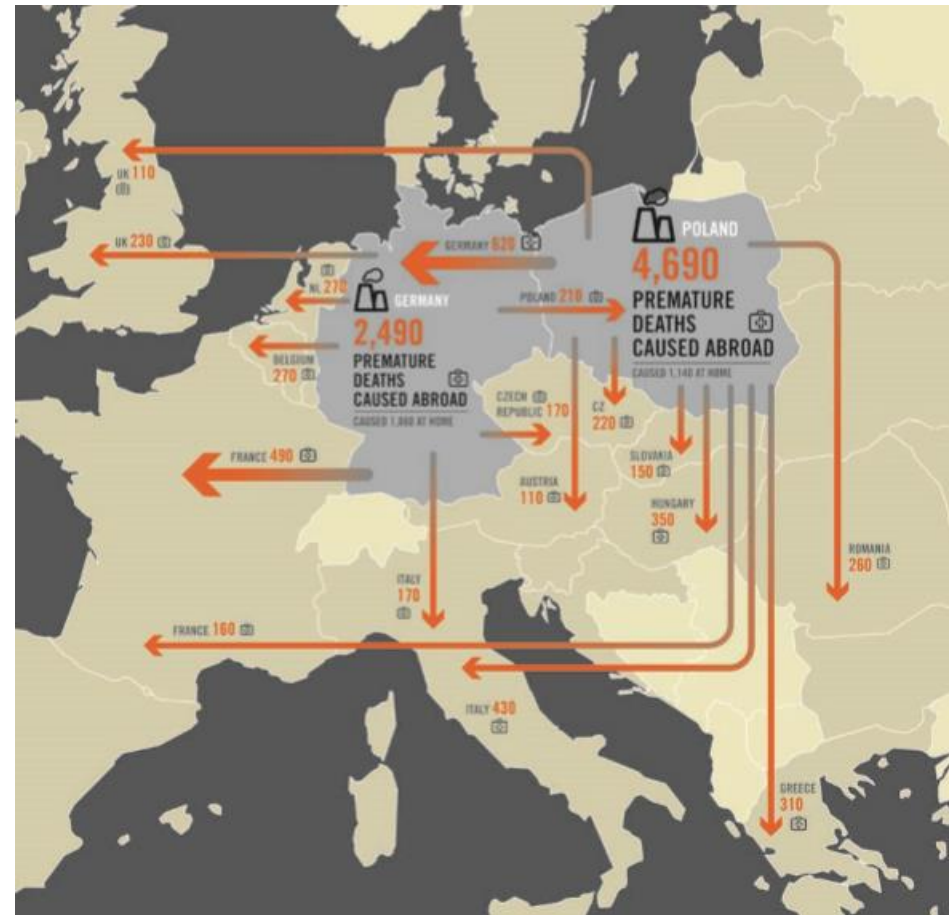
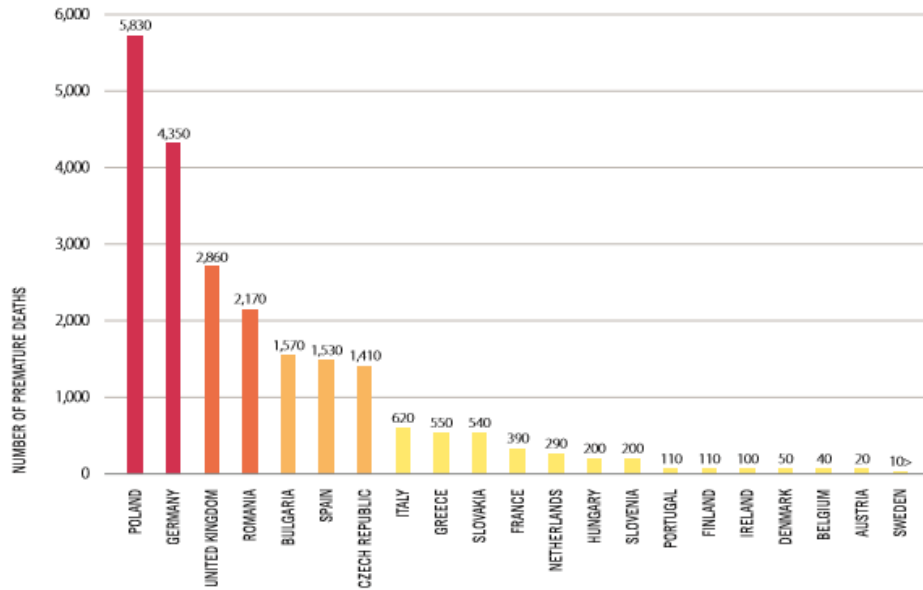
- OVER 50 PREMATURE DEATHS
- EUROPEAN TOTAL
- PREMATURE DEATHS CAUSED IN ONE COUNTRY BY THAT SAME COUNTRY'S COAL PLANTS

IMPACTED COUNTRY ↓	EMITTING COUNTRY																			TOTAL	
	Austria	Belgium	Bulgaria	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Spain		United Kingdom
Austria	0	0	30	30	0	0	0	50	0	0	0	10	0	110	0	10	10	0	0	0	250
Belgium	0	0	0	20	0	0	20	270	0	0	0	0	20	50	0	0	0	0	10	100	510
Bulgaria	0	0	190	10	0	0	10	20	0	0	0	0	0	90	0	260	10	0	0	0	590
Czech Republic	0	0	10	110	0	0	0	170	0	10	0	0	0	220	0	10	20	0	0	10	570
Denmark	0	0	0	10	0	0	0	40	0	0	0	0	0	30	0	0	0	0	0	40	140
Finland	0	0	0	0	0	30	0	0	0	0	0	0	0	10	0	0	0	0	0	0	30
France	0	10	0	20	0	0	50	490	0	0	10	40	40	160	10	0	10	10	110	350	1,300
Germany	0	20	10	300	20	10	90	1,860	0	20	10	10	130	620	0	10	50	0	40	320	3,630
Greece	0	0	200	30	0	0	10	160	10	0	0	20	0	310	0	270	20	0	10	0	1,650
Hungary	0	0	20	50	0	0	0	60	10	10	0	10	0	350	0	90	40	0	0	10	700
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	50
Italy	10	0	40	110	0	0	60	170	40	10	0	350	10	430	10	60	40	130	100	30	1,610
Netherlands	0	0	0	30	0	0	20	270	0	0	10	0	0	20	80	0	0	10	0	160	620
Poland	0	0	30	180	0	10	10	210	0	40	0	10	10	1,140	0	40	120	0	10	40	1,660
Portugal	0	0	0	0	0	0	0	10	0	0	0	0	0	0	10	0	0	0	150	10	190
Romania	0	0	370	30	0	0	0	30	20	10	0	10	0	260	0	530	30	0	0	10	1,300
Slovakia	0	0	10	20	0	0	0	20	0	10	0	0	0	150	0	20	20	0	0	0	290
Slovenia	0	0	0	10	0	0	0	10	0	0	0	10	0	30	0	0	0	10	0	0	80
Spain	0	0	0	20	0	0	10	70	0	0	0	30	10	40	60	0	0	10	840	60	1,170
United Kingdom	0	0	0	40	0	10	80	230	0	0	0	50	0	20	110	0	0	10	0	20	1,520
Other EU countries	0	0	20	40	0	10	10	80	20	10	0	20	0	210	0	30	20	10	20	50	570
Non-EU countries	0	0	610	200	0	30	20	270	270	50	0	80	10	1,420	10	850	130	20	200	110	4,310
TOTAL	20	40	1,570	1,610	50	100	350	4,350	550	200	110	620	290	5,830	110	2,170	540	200	1,530	2,470	22,910

Europe's Dark Cloud





















PREMATURE DEATHS FROM COAL-FIRED POWER PLANTS

ACCORDING TO COUNTRY IN WHICH THE COAL PLANTS RESPONSIBLE ARE SITUATED (2013)



Europe's Dark Cloud

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

Rank	Power plant	Country	Premature Deaths	Chronic bronchitis	Hospital admissions	Lost working days	Asthma attacks in children	€m Health costs median	€m Health costs high
1	Bełchatów	PL	1,270	630	1,310	359,200	27,830	 1,790	 3,450
2	Maritsa East 2	BG	730	370	640	192,820	18,150	 1,050	 2,000
3	Kozienice	PL	650	320	660	186,500	14,140	 920	 1,770
4	Drax	UK	590	300	480	142,590	14,630	 820	 1,590
5	Rybnik	PL	480	240	490	134,660	10,380	 670	 1,290
6	Bobov Dol	BG	470	240	390	123,280	11,680	 680	 1,290
7	Jänschwalde	DE	470	240	420	157,000	10,080	 660	 1,270
8	Novaky	SK	470	230	450	138,320	9,700	 640	 1,240
9	Niederaussem	DE	450	190	340	125,320	8,500	 630	 1,210
10	Drobeta	RO	430	220	350	118,170	10,840	 620	 1,180













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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 30 EU COAL POWER PLANTS EMITTING THE MOST CO₂

Rank	Power plant	Country	Main fuel	MW	2015 CO ₂ emissions, Mt
1	Bełchatów	Poland	Lignite	5,400	 37.1
2	Neurath	Germany	Lignite	4,168	 32.1
3	Niederaussem	Germany	Lignite	3,430	 27.3
4	Jänschwalde	Germany	Lignite	2,790	 23.3
5	Boxberg	Germany	Lignite	2,427	 19.4
6	Weisweiler	Germany	Lignite	1,800	 18.1
7	Drax	United Kingdom	Hard coal	2,580	 13.2
8	Brindisi Sud	Italy	Hard coal	2,428	 13.1
9	Schwarze Pumpe	Germany	Lignite	1,500	 12.2
10	Kozlenice	Poland	Hard coal	2,919	 11.4

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'**.



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

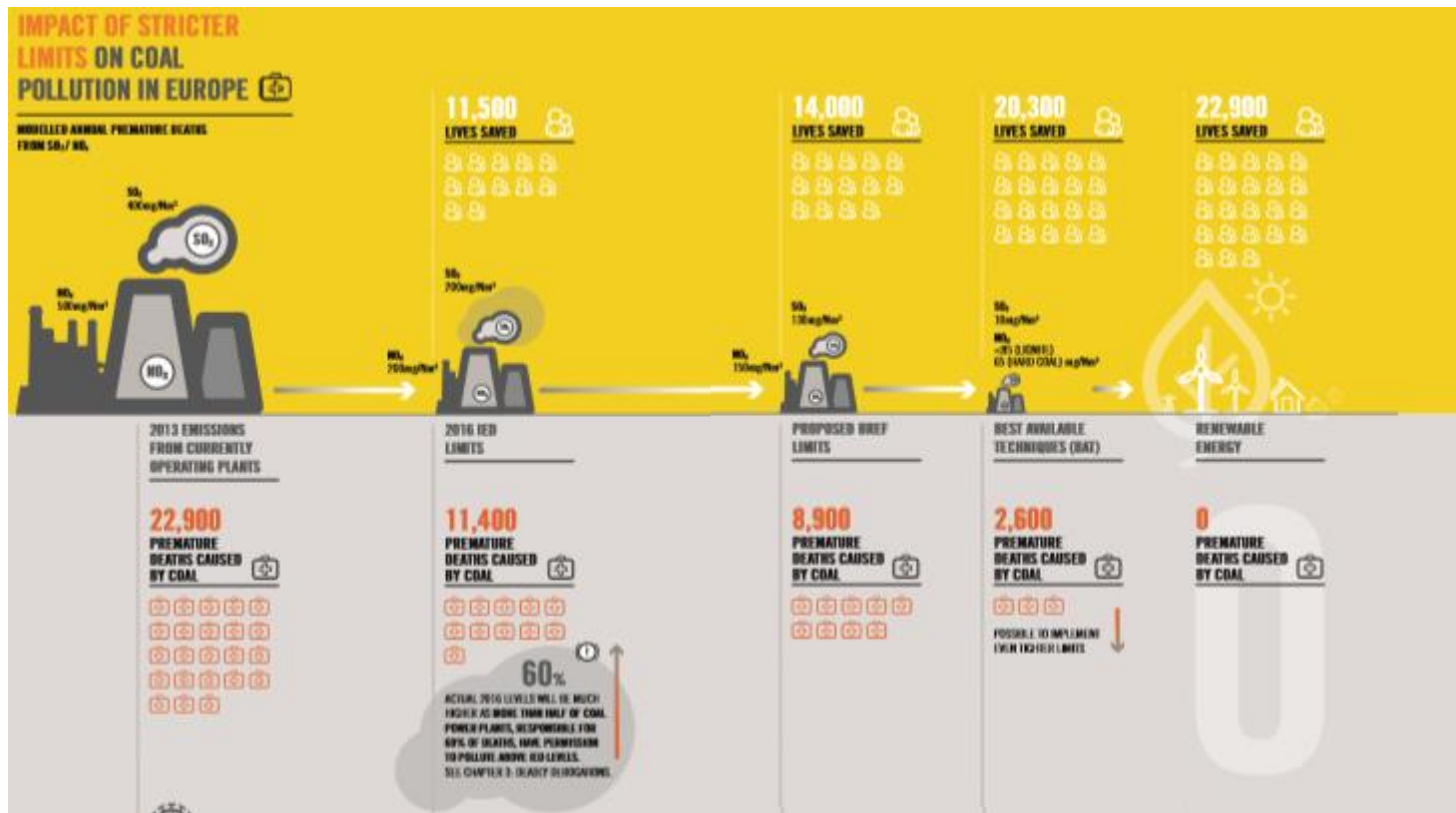
Lifting Europe's Dark Cloud

- 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

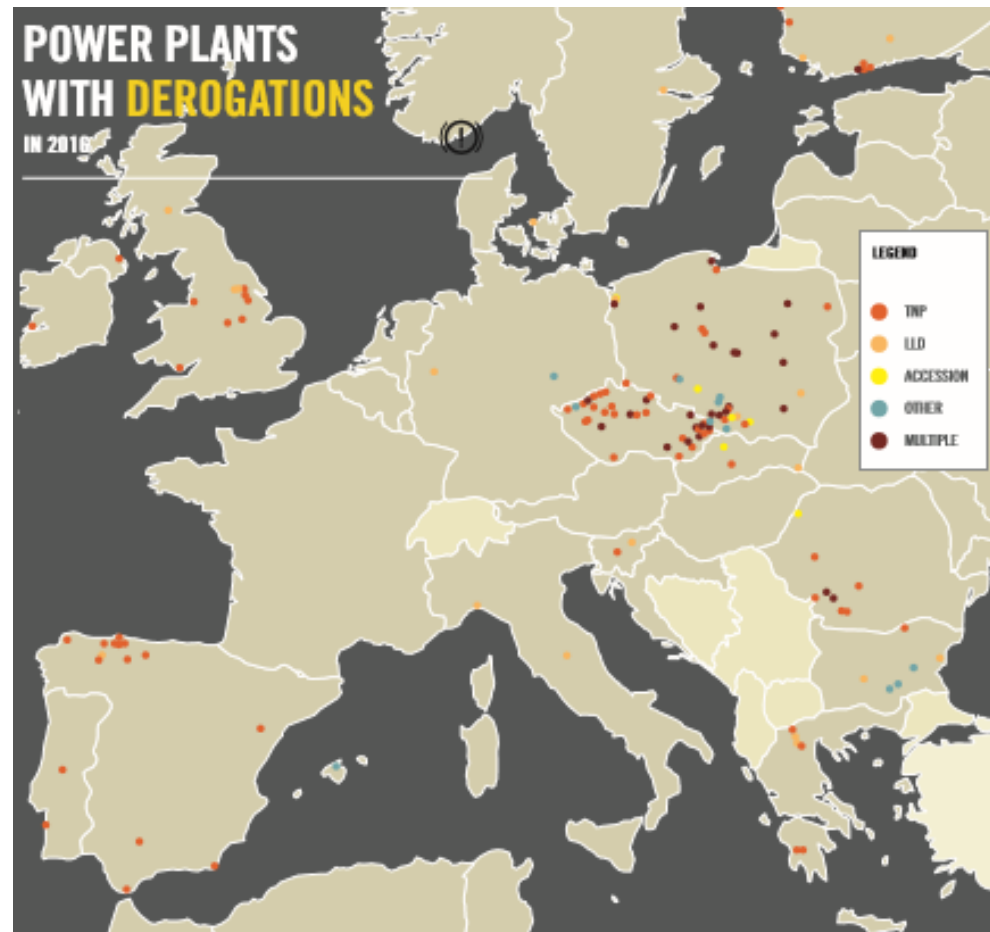
A revision of the EU's 'LCP BREF', a technical document outlining best practices for industry, would lead to tougher new pollution limits and has the potential to reduce the number of premature deaths caused by coal power plants from 22,900 to 2,600 deaths per year (as well as other health consequences).



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

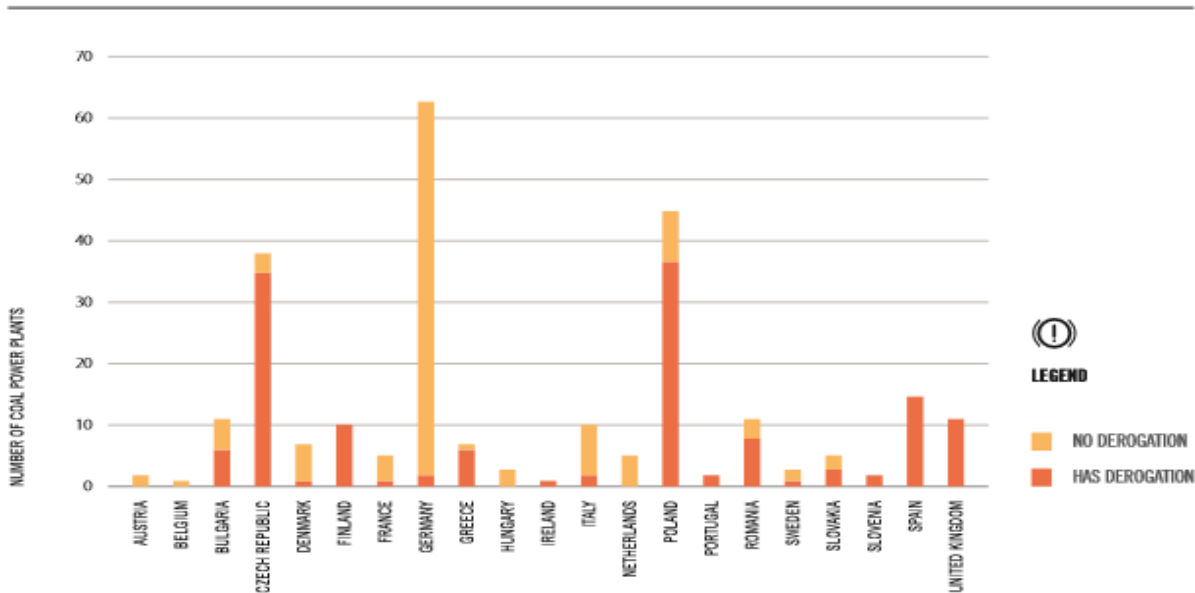


Lifting Europe's Dark Cloud

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.

COAL POWER PLANTS WITH IED DEROGATIONS

SEPTEMBER 2016



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Source: (2016), Can Europe, WWF, HEAL, Sandbag, EEB, Lifting Europe's Dark Cloud, How cutting coal saves lives; Fossil fuel subsidies from Europe's carbon market Carbon Market Watch Policy Briefing, April 2016

„Permission to pollute”

plant name	country	premature deaths	derogations
Bełchatów	Poland	1270	*
Kozienice	Poland	652	TNP/AT
Rybnik	Poland	476	TNP/AT
Połaniec	Poland	178	LDD/AT
Maritsa East	Bulgaria	730	*
Bobov Dol	Bulgaria	470	*
Rovinari	Romania	245	TNP/AT
Govora	Romania	234	TNP

AT Accession Treaty
DH District Heating
DR Desulphurisation Rate
LLD Limited Lifetime
SIS Small isolated systems
TNP Transitional National Plan



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



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“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.”

2015 Lancet Commission on Health and Climate Change

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