EUROPE'S DARK CLOUD

HOW COAL-BURNING COUNTRIES ARE MAKING THEIR NEIGHBOURS SICK

CAN CLIMATE ACTION NETWORK Europe

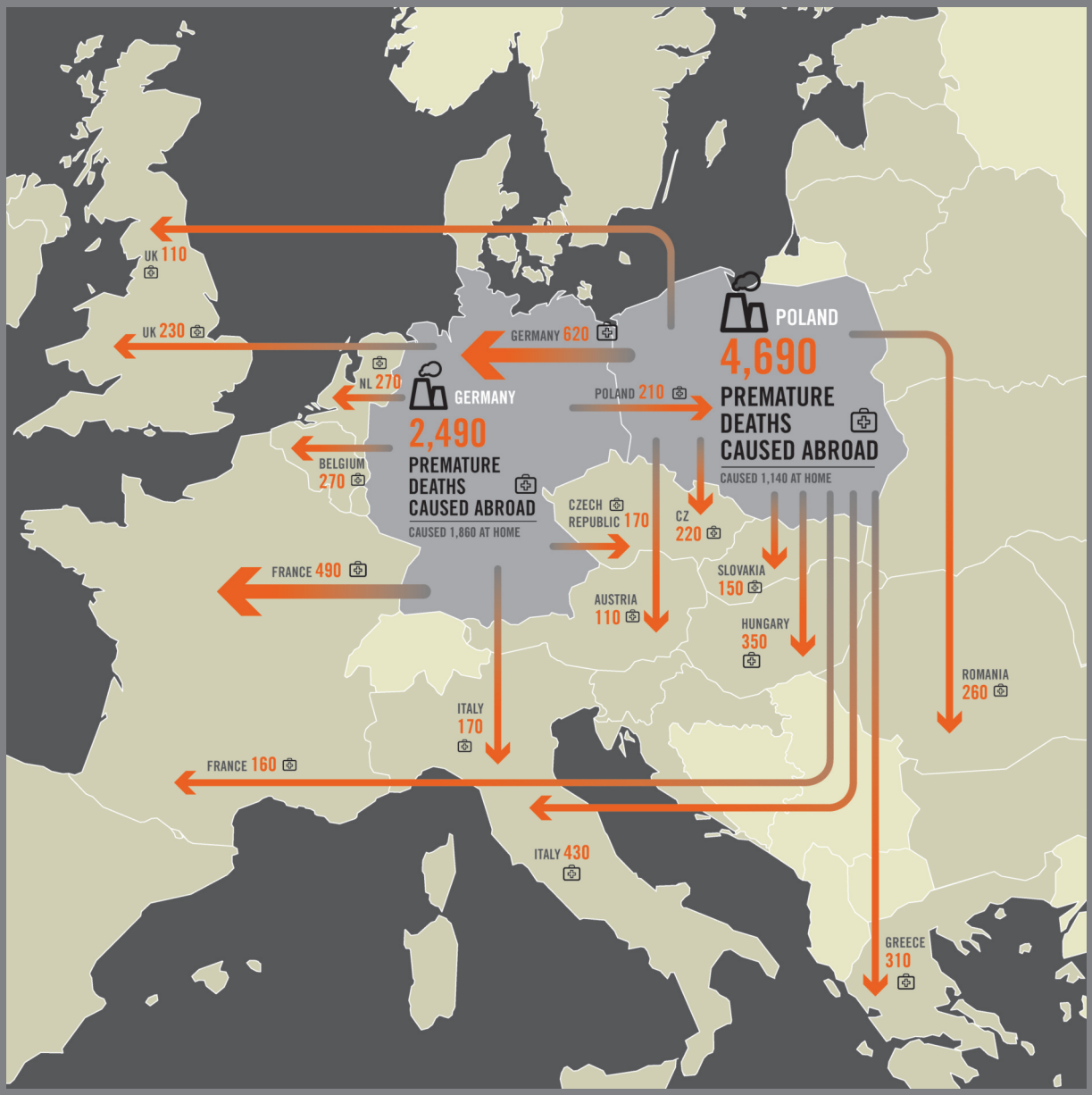
HEAL Promoting environmental policy that contributes to good health

sandbag

WWF

WHO MAKES
THE DARK CLOUD

POLAND & GERMANY

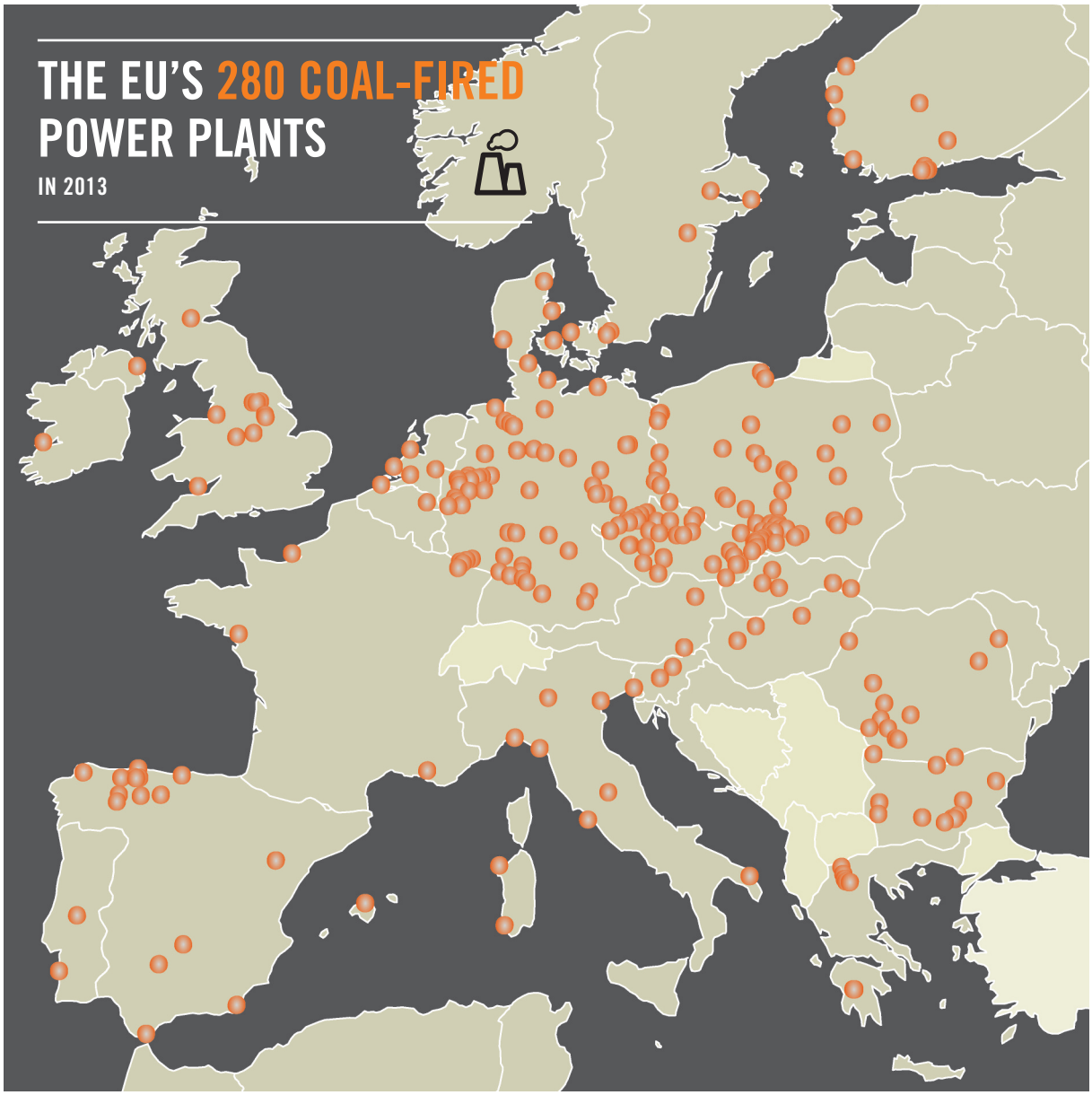


POLISH AND GERMAN COAL PLANTS CAUSE THE MOST HEALTH DAMAGE ABROAD IN THE EU.

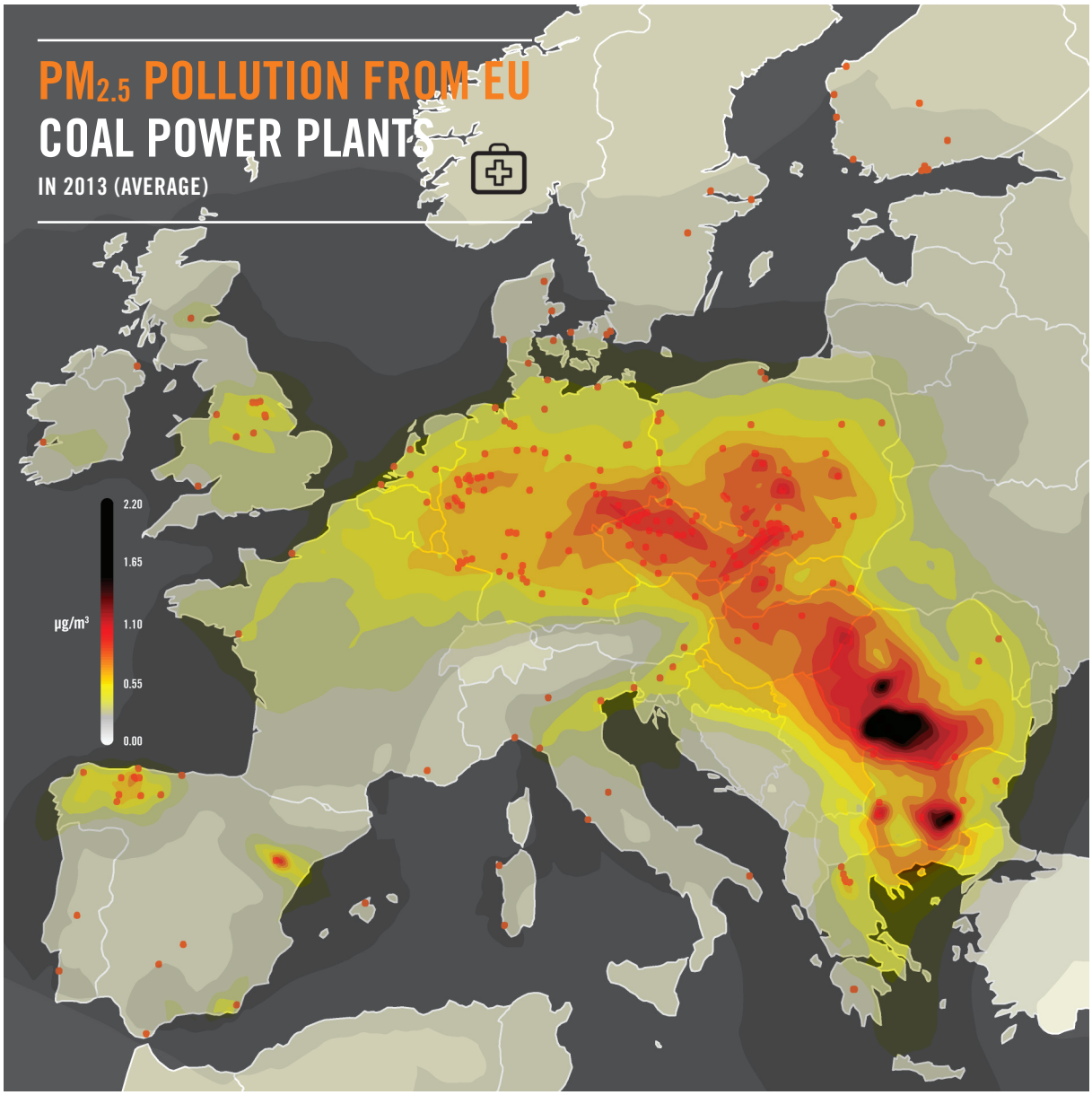
EUROPE'S DARK CLOUD

... & WHO BREATHES IT IN?

FRANCE HAS LITTLE COAL IN ITS POWER MIX, BUT IS HEAVILY IMPACTED BY ITS NEIGHBOURS' COAL PLANTS.



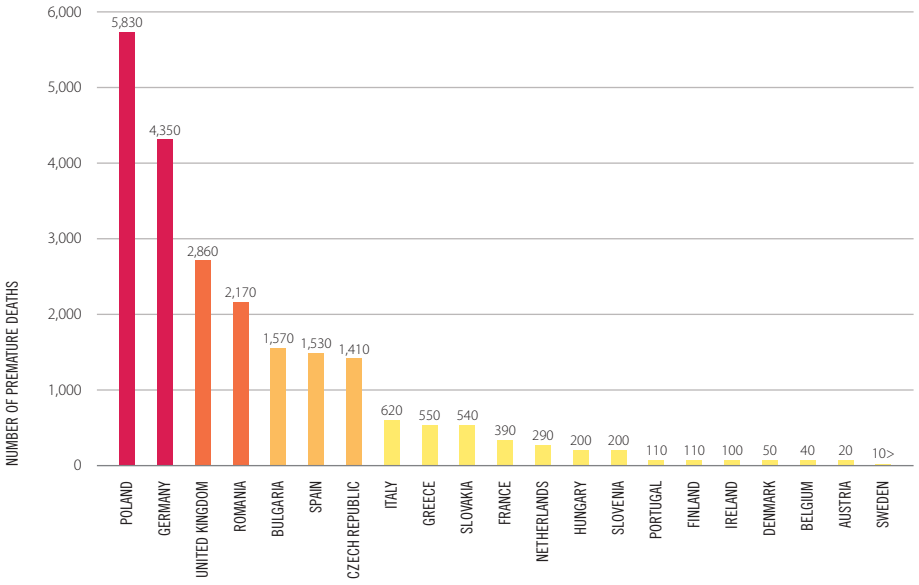
EUROPE'S DARK CLOUD



EUROPE'S
DARK
CLOUD

PREMATURE DEATHS FROM COAL-FIRED POWER PLANTS

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



LEGEND

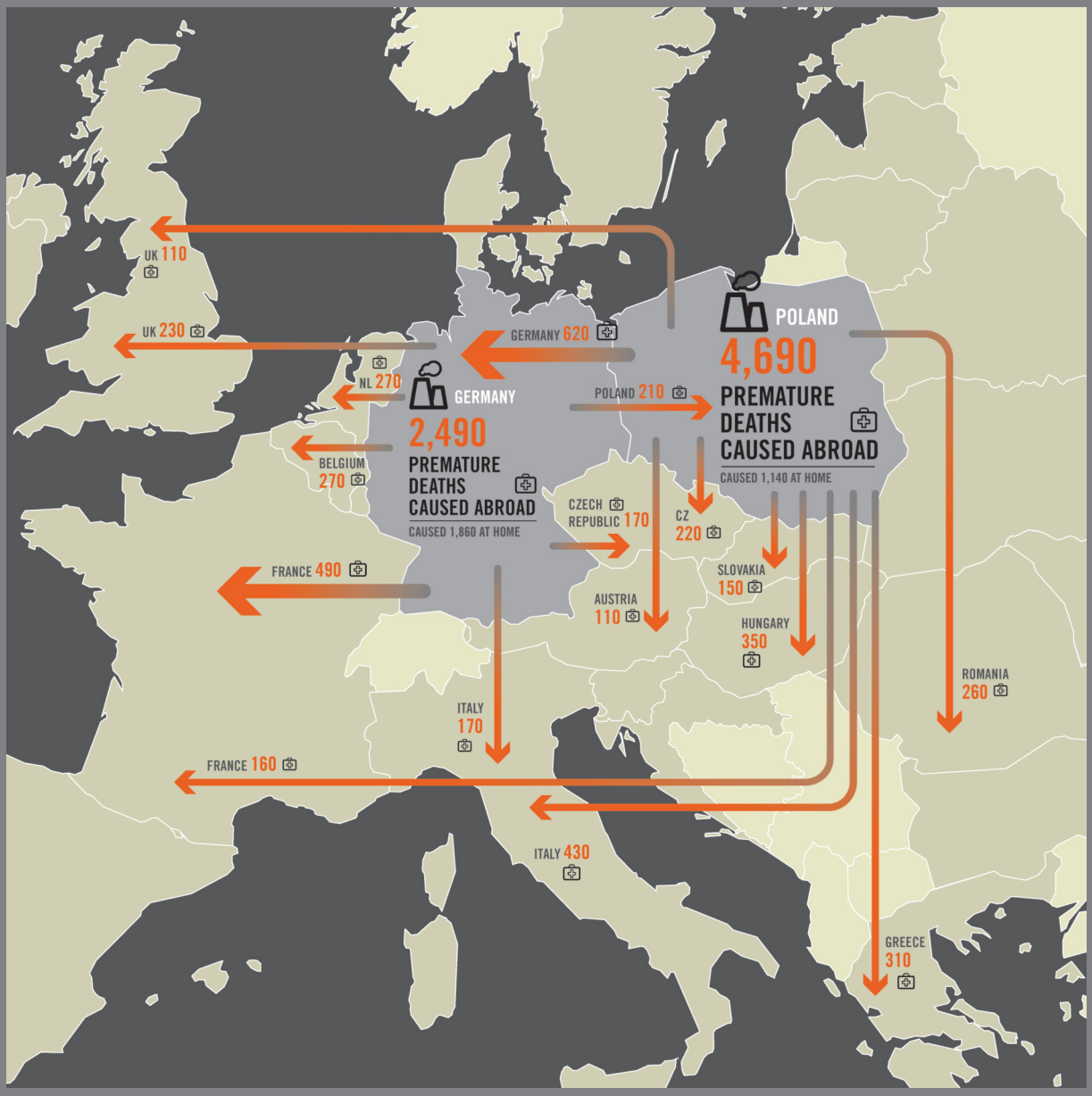
NUMBER OF PREMATURE DEATHS

- OVER 4,000
- OVER 2,000
- OVER 1,000
- 0-1,000

EUROPE'S DARK CLOUD

WHO MAKES
THE DARK CLOUD

POLAND & GERMANY



POLAND 5,830

PREMATURE DEATHS CAUSED, INCLUDING:

POLAND: 1,140
GERMANY: 620
ITALY: 430
HUNGARY: 350
GREECE: 310
ROMANIA: 260
CZECH REPUBLIC: 220
FRANCE: 160
SLOVAKIA: 150
AUSTRIA: 110
UNITED KINGDOM: 110

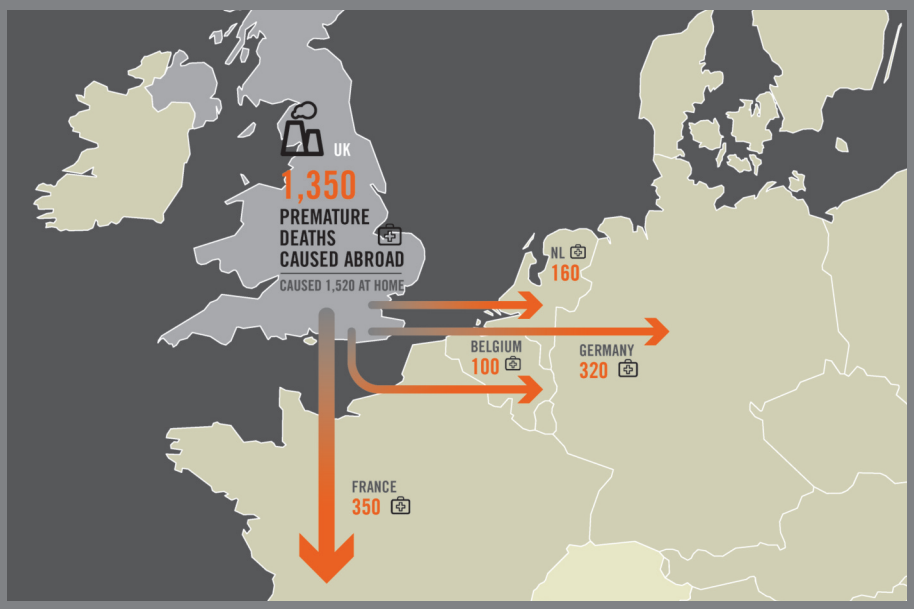
GERMANY 4,350

PREMATURE DEATHS CAUSED, INCLUDING:

GERMANY: 1,860
FRANCE: 490
BELGIUM: 270
NETHERLANDS: 270
UNITED KINGDOM: 230
POLAND: 210
CZECH REPUBLIC: 170
ITALY: 170

EUROPE'S DARK CLOUD

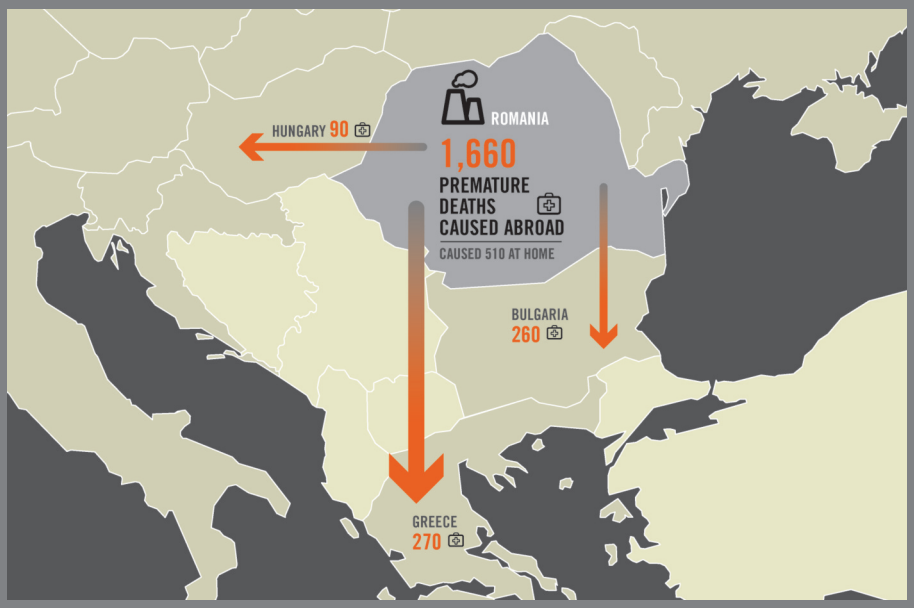
WHO MAKES
THE DARK CLOUD



UNITED KINGDOM 2,870

PREMATURE DEATHS CAUSED, INCLUDING:

UNITED KINGDOM: 1,520
FRANCE: 350
GERMANY: 320
NETHERLANDS: 160
BELGIUM: 100

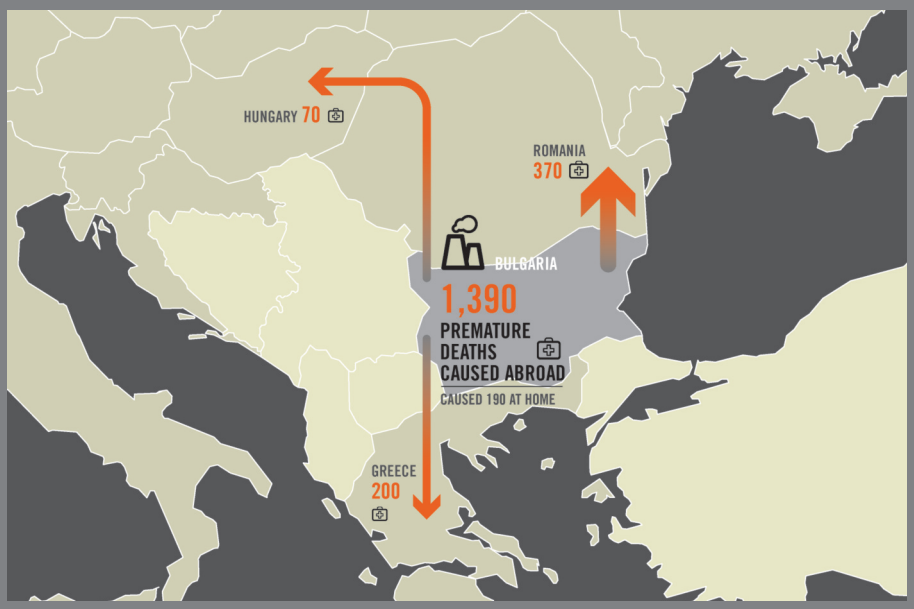


ROMANIA 2,170

PREMATURE DEATHS CAUSED, INCLUDING:

ROMANIA: 510
GREECE: 270
BULGARIA: 260
HUNGARY: 90

WHO MAKES
THE DARK CLOUD



BULGARIA 1,570

PREMATURE DEATHS CAUSED, INCLUDING:

BULGARIA: 190
ROMANIA: 370
GREECE: 200
HUNGARY: 70

CZECH REPUBLIC 1,410

PREMATURE DEATHS CAUSED, INCLUDING:

CZECH REPUBLIC: 110
GERMANY: 390
POLAND: 180
ITALY: 110

... & WHO BREATHES IT IN?

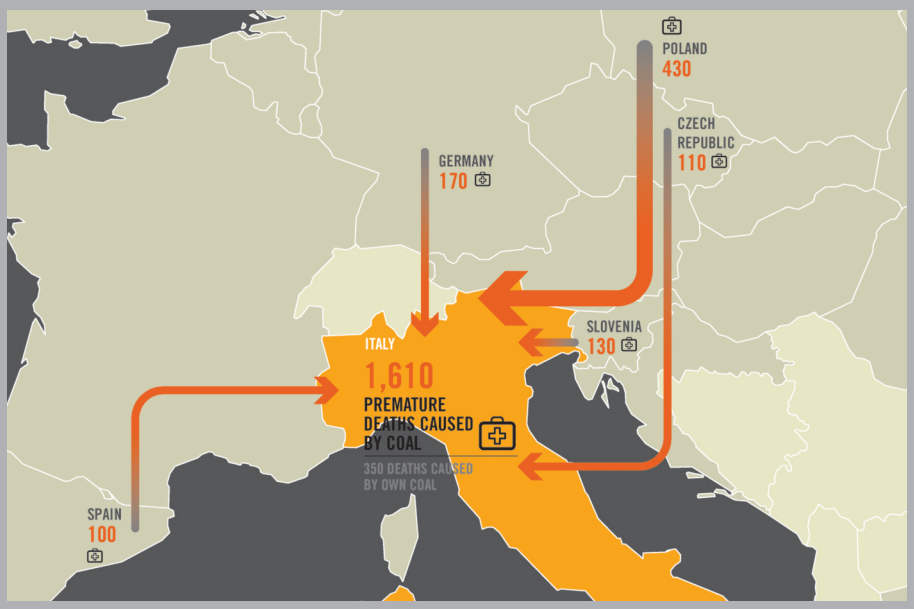
FRANCE 1,380

PREMATURE DEATHS CAUSED BY COAL, INCLUDING FROM:

FRANCE: 50
GERMANY: 490
UK: 350
POLAND: 160
SPAIN: 110
CZECH REPUBLIC: 70

While Germany is a major producer of coal pollution, which caused 1,860 deaths within the country in 2013, it also suffered 1,770 additional premature deaths from its neighbours' coal.

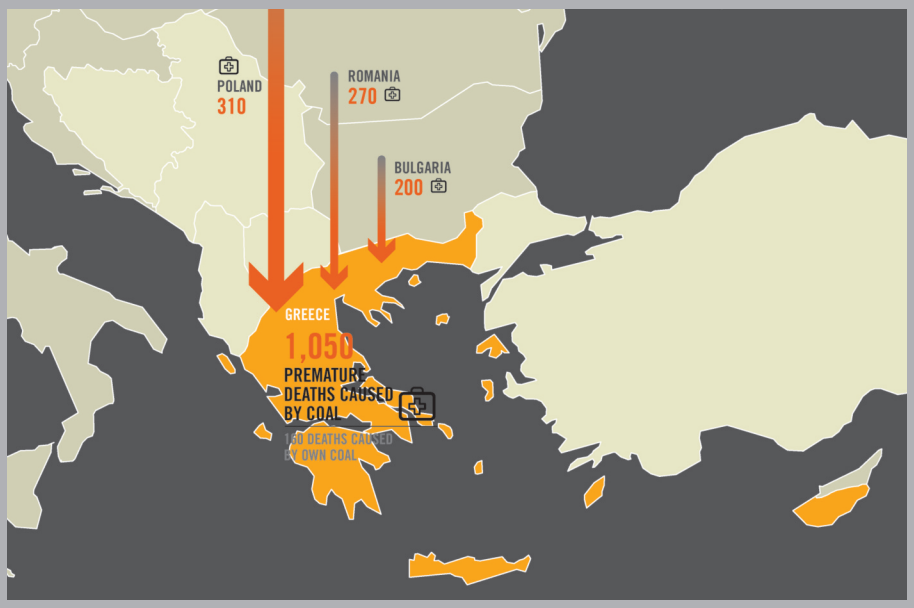
... & WHO BREATHES IT IN?



ITALY 1,610

PREMATURE DEATHS CAUSED BY COAL, INCLUDING FROM:

ITALY: 350
POLAND: 430
GERMANY: 170
SLOVENIA: 130
CZECH REPUBLIC: 110
SPAIN: 100

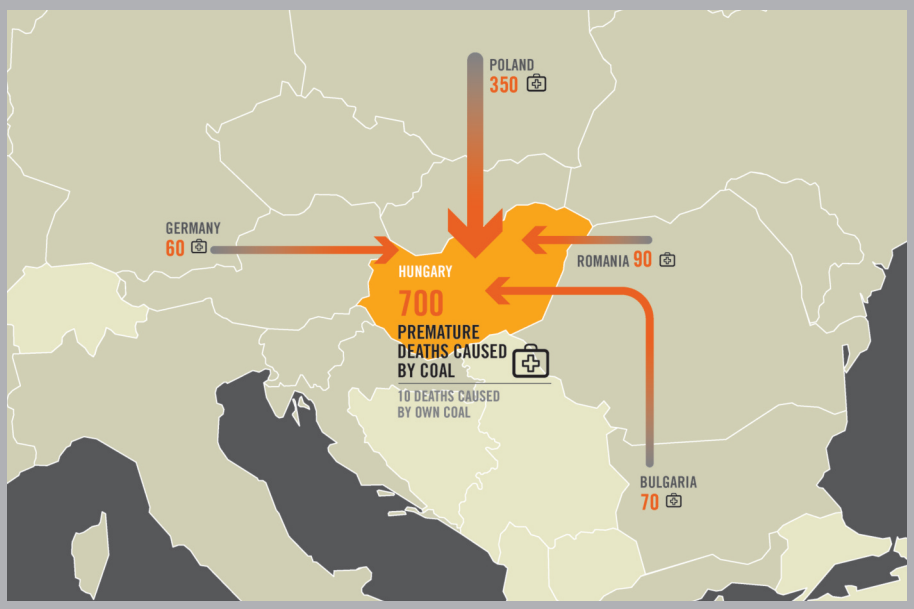


GREECE 1,050

PREMATURE DEATHS CAUSED BY COAL, INCLUDING FROM:

GREECE: 160
POLAND: 310
ROMANIA: 270
BULGARIA: 200

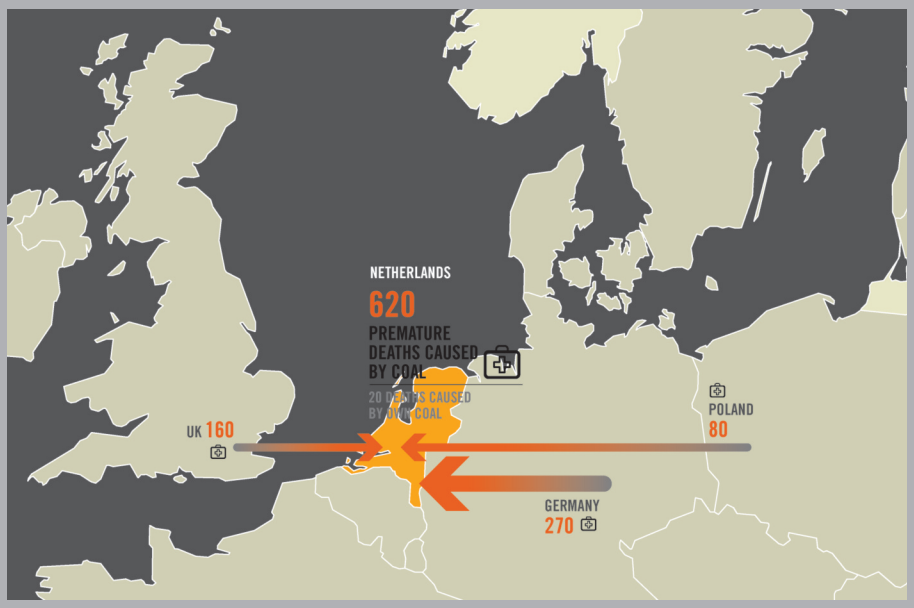
... & WHO BREATHES IT IN?



HUNGARY 700

PREMATURE DEATHS CAUSED BY COAL, INCLUDING FROM:

HUNGARY: 10
POLAND: 350
ROMANIA: 90
BULGARIA: 70
GERMANY: 60



NETHERLANDS 620

PREMATURE DEATHS CAUSED BY COAL, INCLUDING FROM:

NETHERLANDS: 20
GERMANY: 270
UK: 160
POLAND: 80

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 →	Austria	Belgium	Bulgaria	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	United Kingdom	TOTAL
Austria	0	0	10	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	0	10	20	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	10	0	0	0	0	0	0	0	10	0	0	0	0	0	0	**30**
France	0	10	0	70	0	0	50	490	0	0	10	40	40	160	10	0	10	10	110	350	**1,380**
Germany	0	20	10	390	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	0	10	160	10	0	20	0	310	0	270	20	0	10	0	**1,050**
Hungary	0	0	70	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	20	80	0	0	10	0	10	160	**620**
Poland	0	0	30	180	0	10	10	210	0	40	0	10	10	1,140	0	40	120	0	10	40	**1,860**
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	510	30	0	0	10	**1,280**
Slovakia	0	0	10	20	0	0	0	20	0	10	0	0	0	150	0	20	20	0	0	0	**250**
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	50	0	20	110	0	0	10	0	20	1,520	**2,100**
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**	**1,410**	**50**	**100**	**390**	**4,350**	**550**	**200**	**110**	**620**	**290**	**5,830**	**110**	**2,170**	**540**	**200**	**1,530**	**2,870**	**22,940**

EUROPE'S DARK CLOUD

COAL'S IMPACTS
ON THE HUMAN BODY

HEALTH IMPACT OF PARTICULATE MATTER EMISSIONS FROM COAL-FIRED POWER PLANTS[1]

Short-term (hours to days):

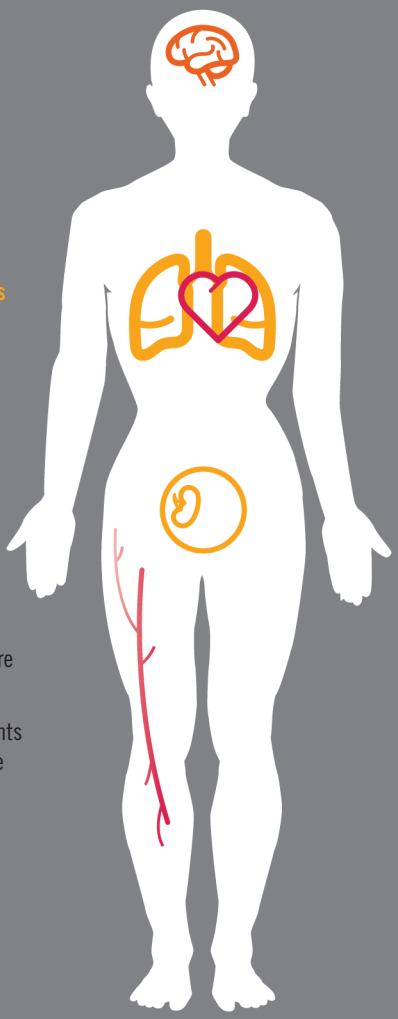
- Cardiovascular & respiratory hospital admissions
- Restricted activity days
- Work days lost
- Incidence of asthma symptoms in asthmatic children & adults
- Higher death rates
- Reduced lung function

Long-term (years):

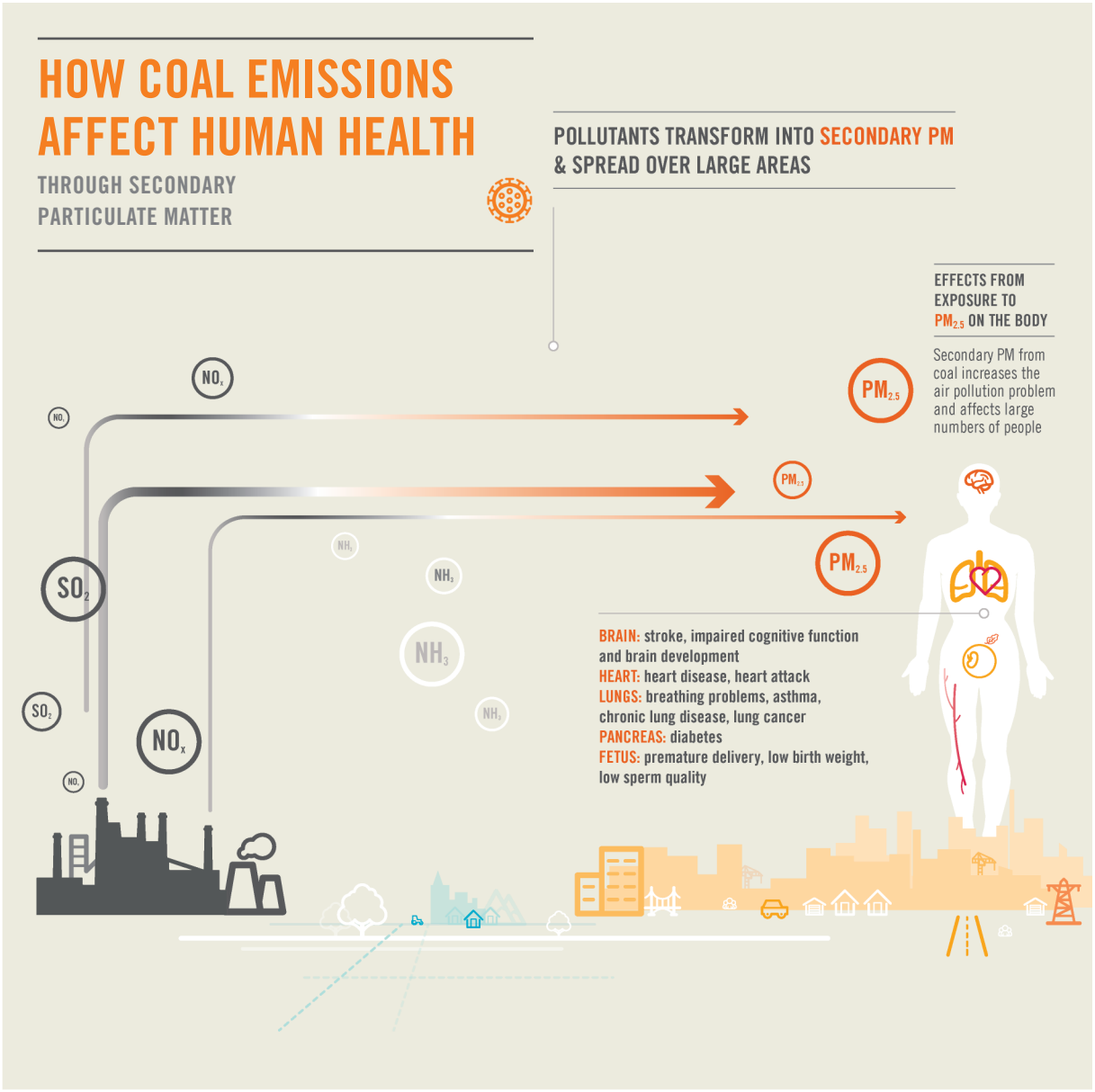
- Reduced life expectancy
- Mortality from cerebrovascular or coronary heart disease, COPD & cancer of the lungs, bronchi & trachea
- Infant mortality
- Prevalence of bronchitis in children
- Incidence of chronic bronchitis in adults
- Incidence of lung cancer & bladder cancer
- Incidence of ischemic 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



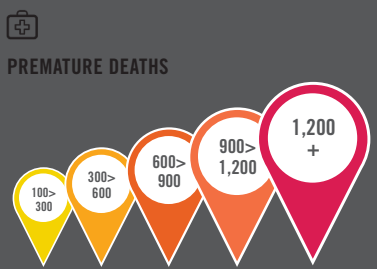
1 Sources: European Respiratory Society (2012), Air Quality and Health. http://www.ersnet.org/publications/air-quality-and-health.html , WHO REVIHAAP Final technical report, 2013; and Rückerl et al. Inhalation Toxicology 2011 Aug;23(10):555-92

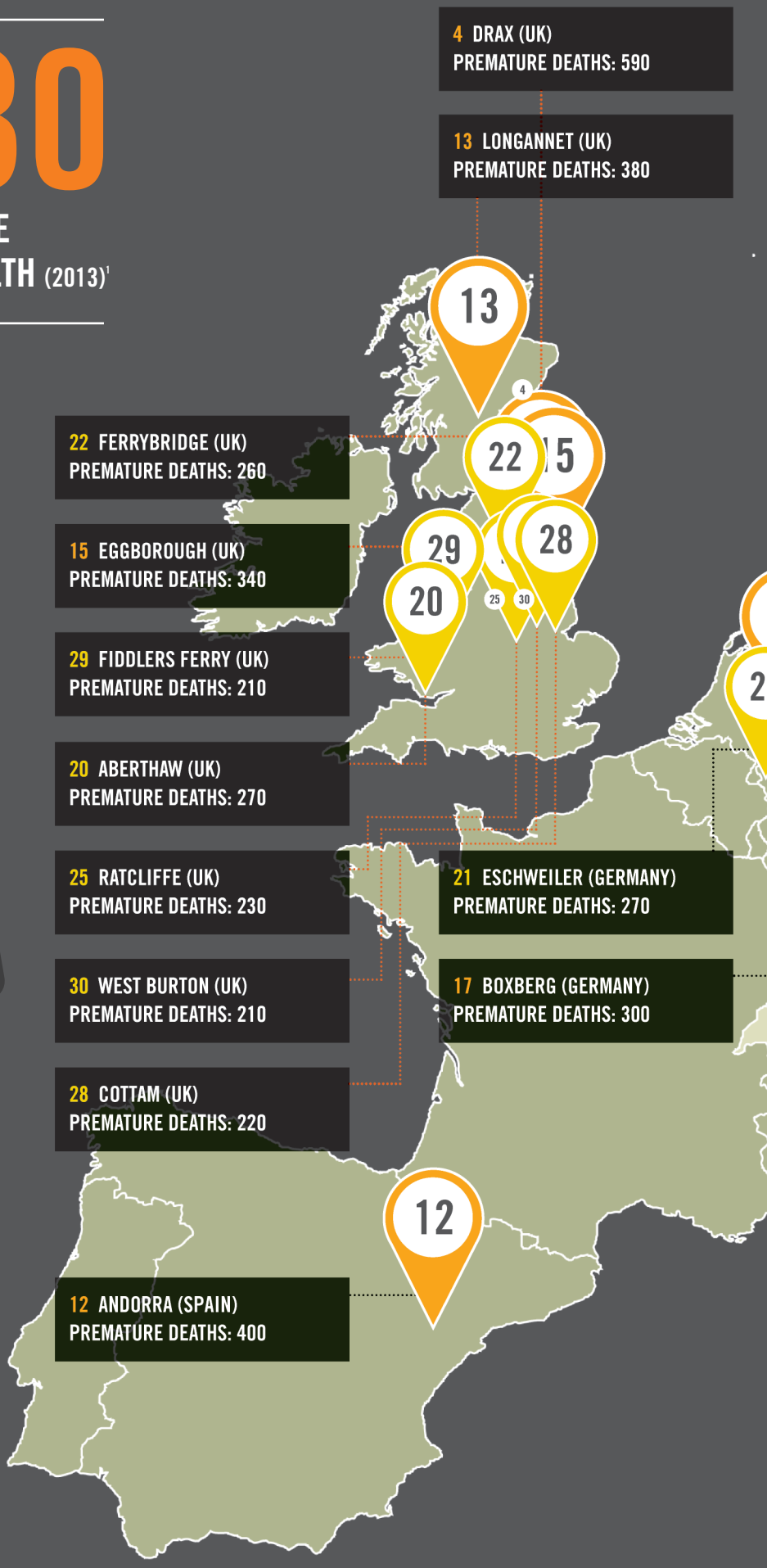


These secondary inorganic aerosols or secondary PM are an important component of $PM_{2.5}$, and can enter deep into the lungs. When inhaled, $PM_{2.5}$ causes various health problems, particularly on the circulatory system, the lungs and the reproductive system, including on unborn children. Only some of these impacts have been quantified in this report.

EUROPE'S TOXIC 30

THE COAL PLANTS WITH THE BIGGEST IMPACTS ON HEALTH (2013)[1]





1 For the methodology used, please see Annex 1.

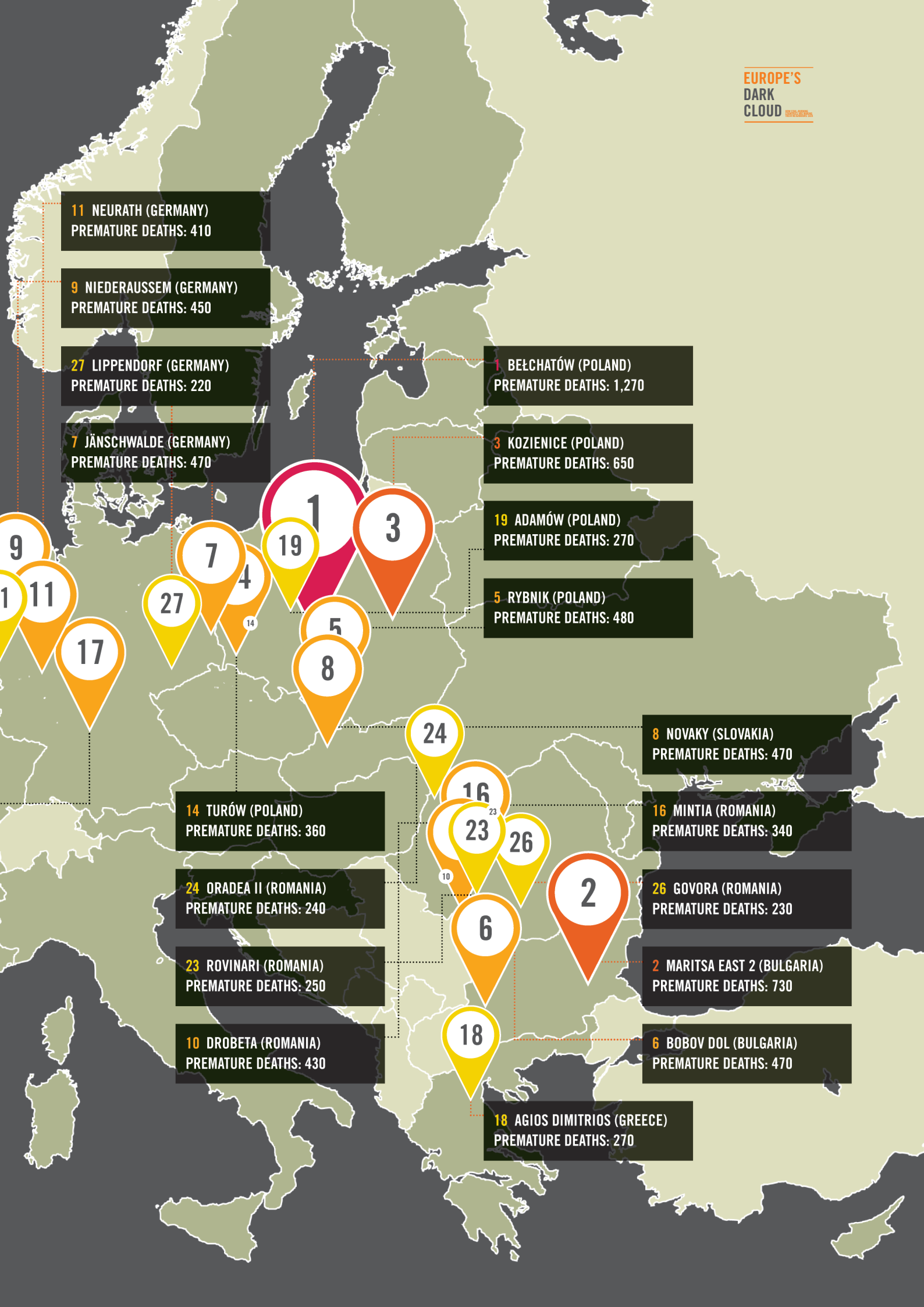

EUROPE'S
DARK
CLOUD
11 NEURATH (GERMANY)
PREMATURE DEATHS: 410
9 NIEDERAUSSEM (GERMANY)
PREMATURE DEATHS: 450
27 LIPPENDORF (GERMANY)
PREMATURE DEATHS: 220
7 JÄNSCHWALDE (GERMANY)
PREMATURE DEATHS: 470
1 BEŁCHATÓW (POLAND)
PREMATURE DEATHS: 1,270
3 KOZIENICE (POLAND)
PREMATURE DEATHS: 650
19 ADAMÓW (POLAND)
PREMATURE DEATHS: 270
5 RYBNIK (POLAND)
PREMATURE DEATHS: 480
8 NOVAKY (SLOVAKIA)
PREMATURE DEATHS: 470
14 TURÓW (POLAND)
PREMATURE DEATHS: 360
16 MINTIA (ROMANIA)
PREMATURE DEATHS: 340
24 ORADEA II (ROMANIA)
PREMATURE DEATHS: 240
26 GOVORA (ROMANIA)
PREMATURE DEATHS: 230
23 ROVINARI (ROMANIA)
PREMATURE DEATHS: 250
2 MARITSA EAST 2 (BULGARIA)
PREMATURE DEATHS: 730
10 DROBETA (ROMANIA)
PREMATURE DEATHS: 430
6 BOBOV DOL (BULGARIA)
PREMATURE DEATHS: 470
18 AGIOS DIMITRIOS (GREECE)
PREMATURE DEATHS: 270

TABLE 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
11	Grevenbroich-Neurath	DE	410	160	320	98,180	7,110	560	1,100
12	Andorra	ES	400	260	360	150,370	11,970	580	1,100
13	Longannet	UK	380	210	290	105,240	10,100	540	1,040
14	Turów	PL	360	190	300	129,510	7,940	510	970
15	Eggborough	UK	340	180	260	87,080	8,620	480	920
16	Mintia	RO	340	170	310	80,970	8,260	470	910
17	Boxberg	DE	300	150	270	97,720	6,340	420	800
18	Agios Dimitrios	EL	270	160	280	84,390	9,500	400	750
19	Adamów	PL	270	140	280	76,740	5,960	390	740
20	Aberthaw	UK	270	120	240	41,490	5,540	360	710
21	Eschweiler-Weisweiler	DE	270	110	200	71,070	4,930	360	710
22	Ferrybridge	UK	260	130	200	64,600	6,490	360	690
23	Rovinari	RO	250	120	240	58,510	6,000	350	680
24	Oradea II	RO	240	120	200	61,250	5,990	350	660
25	Ratcliffe	UK	230	110	190	51,580	5,510	330	640
26	Govora	RO	230	120	200	59,980	5,820	320	630
27	Lippendorf	DE	220	120	190	77,680	4,860	310	600
28	Cottam	UK	220	100	190	40,580	4,850	300	580
29	Fiddler's Ferry	UK	210	110	170	52,440	5,330	290	570
30	West Burton	UK	210	100	180	42,380	4,760	280	550
	TOP 30		**11,680**	**5,870**	**10,380**	**3,209,610**	**271,780**	**€ 16,440**	**€ 31,660**
	All 257		23,900	11,800	21,000	6,575,800	538,300	32,400	62,300
	TOP 30 as % of all		51%	50%	50%	49%	50%	51%	51%

* Of these 30 coal power plants operating in 2015, all are still operating today with some exceptions: Longannet and Ferrybridge were retired in 2016.

EUROPE'S DARK CLOUD

TABLE THE 30 EU COAL POWER PLANTS EMITTING THE MOST CO_2

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	Kozienice	Poland	Hard coal	2,919	11.4
11	Maritsa East 2	Bulgaria	Lignite	1,473	11.3
12	Torrevaldaliga	Italy	Hard coal	1,821	10.7
13	Agios Dimitrios	Greece	Lignite	1,456	10.6
14	Lippendorf	Germany	Lignite	1,750	10.3
15	Kardia	Greece	Lignite	1,110	8.9
16	Sines	Portugal	Hard coal	1,192	8.7
17	West Burton	United Kingdom	Hard coal	2,012	7.7
18	Turów	Poland	Lignite	1,488	7.6
19	Aboño	Spain	Hard coal	843	7.5
20	As Pontes	Spain	Lignite	1,403	7.5
21	Longannet	United Kingdom	Hard coal	2,260	7.5
22	Mannheim	Germany	Hard coal	1,953**	7.3
23	Cottam	United Kingdom	Hard coal	2,008	6.8
24	Aberthaw	United Kingdom	Hard coal	1,586	6.7
25	Rybnik	Poland	Hard coal	1,775	6.5
26	Litoral	Spain	Hard coal	1,066	6.4
27	Mátrai Eromu	Hungary	Lignite	812	6.4
28	Połaniec	Poland	Hard coal	1,657	6.3
29	Centrale Maasvlakte	Netherlands	Hard coal	1,040	5.9
30	Opole	Poland	Hard coal	1,532	5.8

n.b. Of these 30 coal power plants operating in 2015, all are still operating today with some exceptions: Longannet was retired in 2016.

** Mannheim's power station unit 9 switched online in 2015 from the test phase, increasing power station capacity from 1115 MW to 1953 MW.

EUROPE'S DIRTY 30

THE COAL PLANTS WITH THE BIGGEST CLIMATE IMPACTS* (2015)

29 MAASVLAKTE (NETHERLANDS)
CO_2 EMISSIONS (Mt/yr): 5.9

21 LONGANNET (UK)
CO_2 EMISSIONS (Mt/yr): 7.5

7 DRAX (UK)
CO_2 EMISSIONS (Mt/yr): 13.2

17 WEST BURTON (UK)
CO_2 EMISSIONS (Mt/yr): 7.7

24 ABERTHAW (UK)
CO_2 EMISSIONS (Mt/yr): 6.7

23 COTTAM (UK)
CO_2 EMISSIONS (Mt/yr): 6.8

6 WEISWEILER (GERMANY)
CO_2 EMISSIONS (Mt/yr): 18.1

22 MANNHEIM (GERMANY)
CO_2 EMISSIONS (Mt/yr): 7.3

5 BOXBERG (GERMANY)
CO_2 EMISSIONS (Mt/yr): 19.4

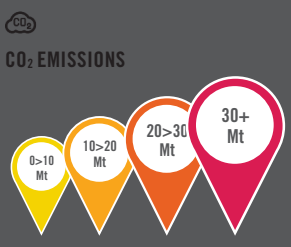
14 LIPPENDORF (GERMANY)
CO_2 EMISSIONS (Mt/yr): 10.3

20 AS PONTES (SPAIN)
CO_2 EMISSIONS (Mt/yr): 7.5

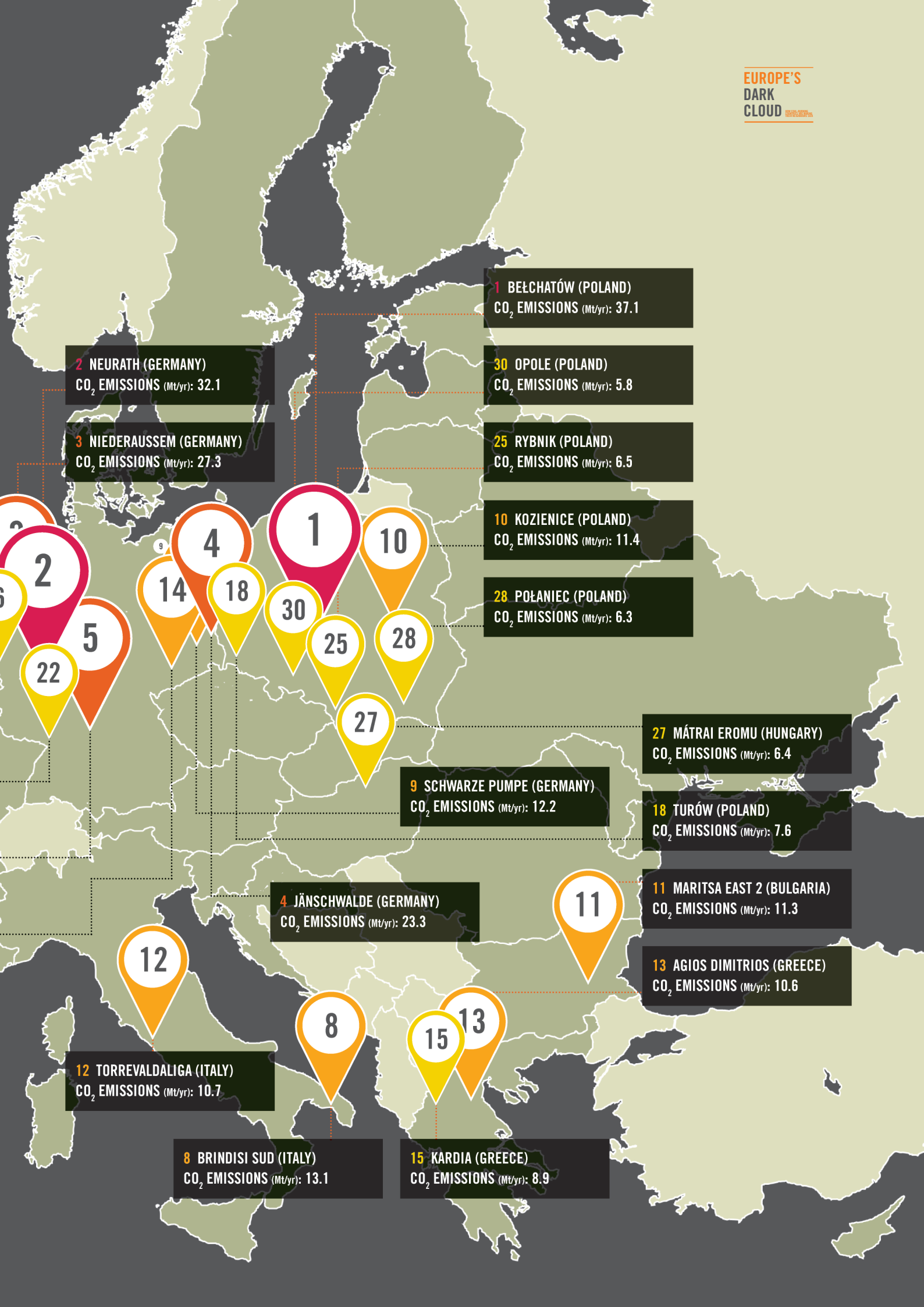
19 ABOÑO (SPAIN)
CO_2 EMISSIONS (Mt/yr): 7.5

16 SINES (PORTUGAL)
CO_2 EMISSIONS (Mt/yr): 8.7

26 LITORAL (SPAIN)
CO_2 EMISSIONS (Mt/yr): 6.4



* Of these 30 coal power plants operating in 2015, all are still operating today with the exception of Longannet.


EUROPE'S
DARK
CLOUD
1 BEŁCHATÓW (POLAND)
CO_2 EMISSIONS (Mt/yr): 37.1
2 NEURATH (GERMANY)
CO_2 EMISSIONS (Mt/yr): 32.1
30 OPOLE (POLAND)
CO_2 EMISSIONS (Mt/yr): 5.8
3 NIEDERAUSSEM (GERMANY)
CO_2 EMISSIONS (Mt/yr): 27.3
25 RYBNIK (POLAND)
CO_2 EMISSIONS (Mt/yr): 6.5
10 KOZIENICE (POLAND)
CO_2 EMISSIONS (Mt/yr): 11.4
28 POŁANIEC (POLAND)
CO_2 EMISSIONS (Mt/yr): 6.3
27 MÁTRAI EROMU (HUNGARY)
CO_2 EMISSIONS (Mt/yr): 6.4
9 SCHWARZE PUMPE (GERMANY)
CO_2 EMISSIONS (Mt/yr): 12.2
18 TURÓW (POLAND)
CO_2 EMISSIONS (Mt/yr): 7.6
4 JÄNSCHWALDE (GERMANY)
CO_2 EMISSIONS (Mt/yr): 23.3
11 MARITSA EAST 2 (BULGARIA)
CO_2 EMISSIONS (Mt/yr): 11.3
13 AGIOS DIMITRIOS (GREECE)
CO_2 EMISSIONS (Mt/yr): 10.6
12 TORREVALDALIGA (ITALY)
CO_2 EMISSIONS (Mt/yr): 10.7
8 BRINDISI SUD (ITALY)
CO_2 EMISSIONS (Mt/yr): 13.1
15 KARDIA (GREECE)
CO_2 EMISSIONS (Mt/yr): 8.9

BULGARIA:
THE LOST VILLAGE

- FROM HEALTHY DESTINATION TO HEALTH DISASTER

BOBOV DOL COAL PLANT NEAR GOLEMO SELO.
© Teodora Stoyanova

Several decades ago, the village of Golemo Selo in Bulgaria was home to a health sanatorium. The beneficial mountain air helped people recover from respiratory diseases and health problems. Today the sanatorium is long gone, and the number of people suffering from respiratory problems in the region is increasing.

The 579 MW net capacity "Bobov Dol" coal plant was built in the 1970s beside Golemo Selo, and is still running today. It burns lignite coal, which produces particularly high amounts of sulphur. It is impossible not to see the coal plant when you arrive in Golemo Selo; it almost appears to be part of the village.

Although the plant is the main source of employment for the villagers, providing work for about 40 of them - 10% - no-one living locally can avoid the toxic dust that covers their cars, outdoor tables and anything that is left outside overnight.

The open-air coal storage and coal dust disposal landings, which are both in close proximity to the village, exacerbate the problem.

The coal power plant is in violation of the EU regulations for emissions of dust and sulphur dioxide emissions, however it continues to operate despite fines and warnings from the local authorities.

There has been a long history of using political leverage to keep the power plant operating, regardless of its damaging impact on health and the environment. Recently, the operator submitted a proposal to start burning waste in addition to coal, which would create even more pollution.

NGOs such as Greenpeace Bulgaria, together with the environmental organisation local group "Za Zemiata" have been fighting against coal power plants in Bulgaria for several years. "The residents of Golemo Selo are falling victim to an outdated energy system. These people deserve to breathe clean air. There are solutions that are available and affordable – renewable energy can offer both jobs for the people and protection to the environment", said Teodora Stoyanova, climate and energy campaigner for Greenpeace Bulgaria.

GREECE:
BREAKING RECORDS, BATTERING HEALTH

AGRIOS DIMITRIOS POWER PLANT.
© Ioannis Tokaris

The citizens of Ellispontos in Greece's Western Macedonia region have an unwelcome claim to fame; they live near the country's largest coal-fired power plant, Agios Dimitrios, which has a capacity of 1,456 MW net.

Agios Dimitrios is not only Greece's largest power plant, it is also its thirstiest, guzzling around 24 million m^3 of water per year.[1] It also holds Europe's record for CO_2 emitted per unit of energy produced, at around 1.35 t CO_2/MWh.[2]

The people of Ellispontos have tried to take legal action against Agios Dimitrios' dismal environmental performance. However, their complaint was dismissed by the European Parliament (Committee on Petitions), which cannot take action against a single plant.[3]

There was a similar outcome when 11 environmental groups filed a complaint against all state-owned energy company PPC's lignite plants in 2010.[4]

The power plant is in dire need of extensive retrofits in order to comply with existing limit values, which will reduce the damage it is causing to the quality of air and human health. However, the large economic investment needed for the retrofit could create pressure to prolong the lifetime of the plant.

According to a report by the European Environmental Agency (EEA), were Greek lignite plants to apply the best available techniques just for SO_2 and NO_x emissions reduction, Greece would gain up to 2.3 billion Euros per year in health and environmental costs.[5]

PPC, the owner and operator of Agios Dimitrios, is obliged to upgrade the plant, as it is included in Greece's Transitional National Plan (TNP) approved by the European Commission in 2014. Yet PPC is currently behind schedule and out of funds.

Air pollution from Agios Dimitrios has a huge cost for crisis-stricken Greece. According to the recent EEA report, the combined air pollution costs to health and environment for which Agios Dimitrios was responsible during the period 2008-2012 are estimated at between 1.5-3.1 billion Euros (300-600 million Euros per year).[6]

"The outlook for Greek lignite has become very bleak because of its poor quality and the recent changes in the relevant EU legislation such as the IED (LCP BREF) and the EU ETS reform. Their combined effect will be a dramatic increase in electricity production costs from lignite in coming years. Agios Dimitrios is particularly vulnerable, due to its abysmal environmental performance and its need for extensive and expensive retrofits. Citizens and environmental groups will eventually win the battle. Hopefully it will be sooner rather than later" said Nikos Mantzaris, Climate and Energy Officer for WWF Greece.

1 According to the last environmental permit Agios Dimitrios requires 3500 m^3 of water per hour. On average the power plant operates ~6800 hrs/year.
2 http://assets.panda.org/downloads/dirty30rankingfinal260905.pdf
3 Petition to the European Parliament (0401/2004)
4 http://www.europarl.europa.eu/sides/getDoc.do?type=COMPARL&reference=PE-460.714&format=PDF&language=EN&secondRef=04
5 http://www.eea.europa.eu/publications/costs-of-air-pollution-2008-2012
6 Ibid

POLAND:
EVICTED TO MAKE WAY FOR KING COAL

PĄTNÓW POWER PLANT.
© Tomasz Krzykała

Piotr Krygier lives on the edge of an open lignite mine.

He used to have a pond where swans swam and farm animals drank. Today, it is a dry hole. The water has been sucked up by the coal plant.

"There was always plenty of water; in the spring meadows were always flooded. Now it's like the Sahara", says Krygier.

The mine in question fuels the Pątnów power plant, part of a complex of four thermal power plants burning lignite near Konin city and providing about 8.5% of Poland's national power.

A lignite open pit mine resembles a surreal lunar landscape. The gigantic hole extends beyond the horizon. At the bottom of this hole are massive machines and trucks that look as small as toys. The area is surrounded by a system of pipes, constantly pumping out the water which is being sucked in through a giant opencast funnel.

Under Polish law, an opencast lignite mine is for the public good. And to create such a mine, many hectares of forests, fields and villages must be destroyed. Therefore losing a home to make way for a lignite mine and power station is not a rare event in Poland.

Things are not much better for those who do get to retain their homes. Their properties lose value and they have to cope with the noise, pollution and damage from the mines. There is the roar of machinery day and night, and toxic dust everywhere.

ITALY: FARMERS FIGHT FOR THEIR RIGHT TO GROW UNPOLLUTED CROPS

BRINDISI POWER PLANT.
© Ida Santoro

Farmers in part of southern Italy are locked in a court battle with the operators of a coal power plant over the plant's contamination of surrounding land.

The plant in question is situated near Brindisi in Puglia and is run by Enel. It has been producing power since 1991 and is the largest fully coal-powered plant in Italy, with a capacity of 2,428 MW. It is split into four units.

The toxic coal dust released into the air by the plant has contaminated vast areas of land, rendering it no longer cultivable. This is causing serious damage to the local economy as well as to the environment.

When the Mayor of Brindisi banned farmers from planting crops near the plant in 2007, Enel challenged the Mayor's decision in court. Its legal team contested the analyses used by the public prosecutor, the public administration and the civil parties (the farmers). Enel argued that the contamination was nothing to do with the coal plant.

The ongoing court battle follows past requests by the region of Puglia to Enel to reduce the emissions of the power plant. It seems that Enel has begun to do so only very recently, and with only partial success.

Green campaigners are also concerned over the huge amounts of waste that the plant produces, some of which - according to a police investigation - was disposed of illegally. Enel employees were incriminated in police findings and the case remains open.

In July 2015, researchers published a report on the health impacts of the Brindisi plant. This found that health impacts are likely to be much more severe than previously believed. In February 2016, for the first time, a report demonstrated a clear link between the high use of coal in the Puglia region and increased rates of mortality and health problems linked to coal-burning, such as cancers and respiratory and cardiovascular diseases.

THE UK: A COAL PHASE-OUT WITH CONTINENTAL BENEFITS

The UK's coal phase-out in a nutshell

Deadline for phase-out:	2025
Amount of coal to be phased out as of 2015:	19,000 MW
Percentage of electricity from coal in 2012:	40%
Premature deaths from these plants in 2013:	2,900

The industrial growth of Great Britain may have been powered by coal, but coal's dominance is over: the UK has announced it will end coal by 2025.

This will bring major benefits to the health both of UK residents and of those in nearby countries, such as France.

In 2014, coal generation made up 36% of the UK's electricity and was responsible for 18% of the UK's CO_2 emissions. But the independent Committee on Climate Change has advised that the UK's power sector will need to be largely decarbonised by 2030[1] in order to reduce emissions in the most cost effective manner.

The tide began to turn against coal in February 2015, when, prior to a general election, future Prime Minister David Cameron pledged to "accelerate the transition to a competitive, energy efficient low carbon economy and to end the use of unabated coal for power generation."[2]

Between March 2015 and March 2016, the permanent closure of five of the UK's eleven coal plants was announced. This equates to roughly half of the UK's total coal capacity.

In the autumn of 2015 and following a concerted campaigning push from a coalition of NGOs, the UK Secretary of State for Energy and Climate Change announced that the Government intends to consult on "proposals to close coal by 2025 - and restrict its use from 2023."[3]

However, this commitment came with the caveat that the closure would only be implemented if enough gas were brought online to cover capacity. A managed phase-out over a decade will give time for this replacement capacity to be built. With the future of coal now clear, greater investment should be available for other energy projects.

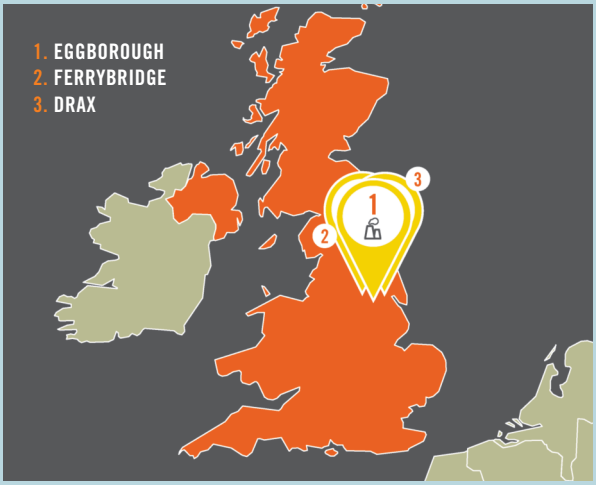
The UK carbon floor price has been essential for this transition. It was fundamental in moving generating capacity away from coal. At the time of writing, the consultation is yet to be published.

The closures announced to date represent a major step forward in the decarbonisation of the UK economy and in the improvement of air quality in the UK. These five coal power stations were responsible for emitting around 6% of UK greenhouse gas emissions, 18% of total UK SO_2 and 7% of UK NO_x in 2014. In May 2016, UK electricity generated from coal fell to zero on more than one occasion - for the first time since the first coal plants opened there in 1882.

However, there are still six unabated coal-fired power plants emitting vast quantities of CO_2 and pollutants into the atmosphere. The emissions from these alone represented 10% of the UK's total GHG emissions in 2014.

The UK government must follow through on their promise to phase out coal from the UK energy mix by bringing forward the legislation that will force them to close by 2025. Closing down the UK's coal plants will prevent approximately 2,900 early deaths every year - more than 1,300 of them in continental Europe.[4]

As this report shows, every coal-fired power station switched off will have benefits for human health, as well as for the climate.



EGGBOROUGH POWER PLANT.
© John Mabbitt

1 To 50-100gCO_2/kWh, https://www.theccc.org.uk/2015/10/22/new-low-carbon-electricity-generation-is-cost-effective-option-for-uk-power-sector-investment-in-2020s-and-beyond/
2 http://www.green-alliance.org.uk/leaders_joint_climate_change_agreement.php
3 https://www.gov.uk/government/speeches/amber-rudds-speech-on-a-new-direction-for-uk-energy-policy
4 https://www.e3g.org/docs/UK_country_profile_-_G7_coal_scorecard.pdf