



Sauvons
le climat

SLC
solutions pour le futur, actions au présent

sauvonsleclimat.org

SLC : Sauvons Le Climat



Le "climat 2017" en 5 points:

1. 2015, 2016, 2017
= 3 années les plus chaude.
2. Évènements climatiques extraordinaires:
HARVEY, IRMA, JOSE,
MARIA
OPHELIA
Inondations en Asie
3. Dislocation et fonte des banquises et inlandsis
4. Sècheresses sévères et incendies historiques sur tous les continents
5. Aucune stabilisation des émissions de GES

COP23 side event: Health & Climate



Stephan Savarese intervient lors d'un « side event » sur le climat et la santé, COP23, Bonn.

COP23 : santé et climat / « On n'a pratiquement rien fait pour le climat et la santé tant qu'il y a des centrales à charbon en service », Stephan Savarese, vice-président de SLC, organisateur de la délégation SLC à la COP23.

COP23 : Education Climatique



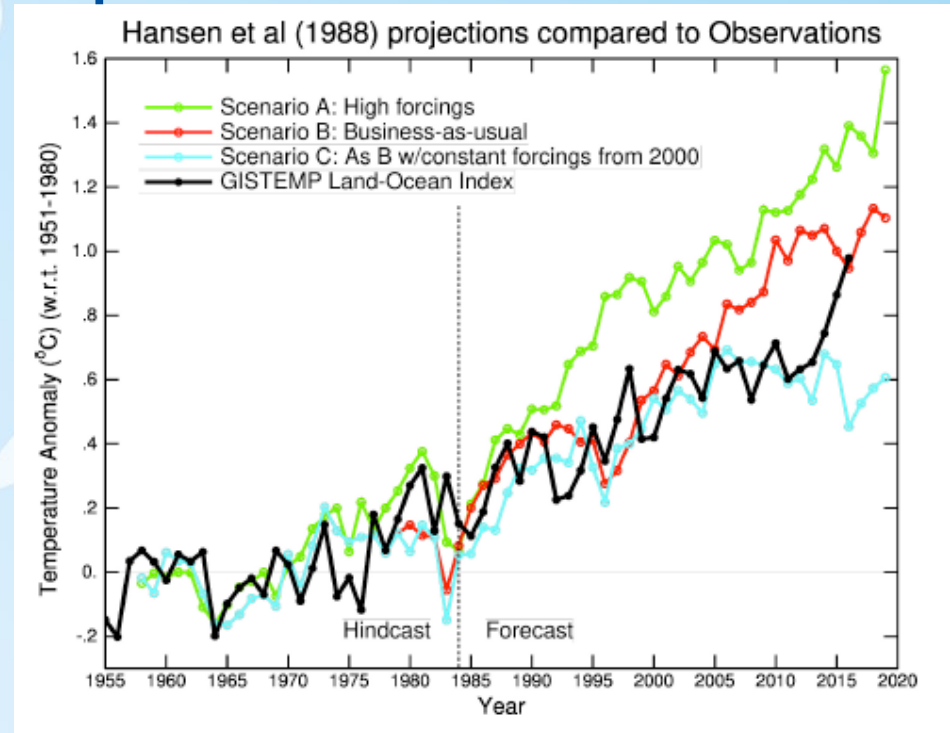
« Les COP sont une source d'information sur le climat et les solutions au changement climatique sans équivalent pour les enseignants »
Anna Schönbach, enseignante en Allemagne, membre de la délégation SLC à la COP23.

Anna Schönbach et Stephan Savarese sur le pavillon France, COP23, Bonn.

2018 : dernière année pour sauver le Climat?

Le "climat 2018" en 5 points:

1. les prévisions de James E. Hansen de 1986 pour 2006... se sont réalisées en 2016: disparition de 90% de la banquise, dislocations mesurables de tous les inlandsis, accélération du réchauffement global, événements climatiques d'intensité jamais mesurées.
2. trop de gens nient encore les faits: mais encore plus de gens luttent contre le changement climatique avec un trop faible impact
3. l'action symbolique doit laisser la place à l'action massive sur les solutions prouvées et non rêvées: on ne fait pas passer à l'échelle globale ce qui ne fonctionne pas. Le climat n'attend pas et se moque pas mal que nous ayons pris conscience du problème...
4. on n'élimine pas par idéologie des solutions qui ont fait leur preuve : si dans notre imaginaire, nous ne laissons aucun espace pour le réalisme et le pragmatisme, alors le changement climatique balayera tout.
5. il ne reste qu'un an pour prendre les bonnes décisions: notre civilisation a rarement connu de tels moments de vérité. Nous serons vite fixés sur notre supériorité par rapport aux dinosaures...



SLC : Sauvons Le Climat

1. COP21 : engagements

2. COP22 : solutions

3. COP23 : désillusions

4. COP24 : décisions

5. Actions ?



Sans vouloir le mettre en scène de manière trop dramatique, il y a en ce début 2018 des observations, des actions et des paroles convergentes vers des décisions majeures et des mesures massives à prendre sans tarder, avant ou pendant la COP24. C'est le sens du [Dialogue Talanoa](#).

SLC : Sauvons Le Climat

- SLC is general purpose non-profit NGO founded in Grenoble, France in 2005
- SLC is a CLIMATE and ENERGY THINK TANK
- SLC has a science/knowledge/fact-based non-political climate action oriented rationale, carefully avoiding any ideology
- We rely on scientific evidence that climate change is a reality, has been going on for a long-time.
- Climate change accelerations since the beginning of the 21st century is a proof that, barring any other factor, it is human-made, is caused by GHG emissions and is causing Anthropogenic Global Warming (AGW)
- Consequences of AGW include: Sea Level Rise (SLR), ocean acidification, extreme weather events
⇒ individual and collective, global and local reactions are required
- Adaptation & mitigation: GHG emission cuts (CO₂+CH₄). Limit costs because available funds for investment are limited.

No power is costlier than no power <> ENERGY EFFICIENCY CAN ONLY GO SO FAR

- Energy and natural resource availability depends on geopolitics : how to avoid energy and climate wars ?

Deep Decarbonation Pathways: NEGATEP, MIX-N, EFFICIENCY-N

Prospective scenarios account for carbon budget, technology readiness level, environmental footprint and sustainability

- energy efficiency is the main factor, but must not be overstated
- electric power is the second factor
- nuclear power is necessary.

SOP : Saving Our Planet

- SOP is general purpose, international, non-profit NGO, founded in Paris during COP21
- SOP is a CLIMATE ACTION priority, progressist and ecomodernist THINK AND DO TANK
- SOP has a science/knowledge/fact-based political climate action oriented rationale, carefully avoiding any ideology
- We rely on scientific evidence and climate change priority rationale similar to those advocated by Sauvons Le Climat (SLC), Environmental Progress (EP) and the Citizens' Climate Lobby (CCL)
- Most of our members have signed the Ecomodernist Manifesto
- Consequences of AGW include: Sea Level Rise (SLR), ocean acidification, extreme weather events
⇒ individual and collective, global and local reactions are required
- Adaptation & mitigation: GHG emission cuts (CO₂+CH₄). Limit costs because available funds for investment are limited.

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COP21- COP22 : lutte contre le déni de progrès technologique

« *la technologie ne peut pas être la solution* »

- Personne ne prétend le contraire: le bon usage de la technologie suppose des adaptations ambitieuses de nos modes de vie, des méthodes d'éducation et des modes de financement.
- Question sous-jacente : progrès vs. régression
Tentation régressive du Club de Rome, « limits to growth » exprimée par Adrastia: *construire un déclin*
- Pessimisme ou haine de soi ?
- Recherche de **solutions** : progresser et déculpabiliser

INUTILE D'EN RAJOUTER → restons positifs = agissons localement ET EN MEME TEMPS globalement

- Gestion de la complexité: #OnePlanet @UNIDO @UNFCCC_CTCN



CONNECTING COUNTRIES TO CLIMATE TECHNOLOGY SOLUTIONS

<https://www.ctc-n.org/network>

COP22- COP23

Impact sanitaire des sources d'énergie

Europe
2000-2015 :

Charbon	Fioul	Gaz	nucléaire	Biomasse	Eolien	PV
122	150	32	9	77	6	12

Monde
1970-2008 :

Filière énergétique	Pays de l'OCDE			Hors OCDE		
	Accidents	Nombre de morts	Nombre de morts/GWe/an ^a	Accidents	Nombre de morts	Nombre de morts/GWe/an ^a
Charbon	87	2 259	0,157	2 394	38 672	0,597
Chine 1994-1999				818	11 302	6,169
Chine 1999-2008				1 214	15 750	
Hors Chine				162	5 788	
Pétrole	187	3 495	0,132	358	19 516	0,897
Gaz naturel	109	1258	0,085	78	1 556	0,111
GPL	58	1856	1,957	70	2 789	14,896
Hydro	1	14	0,003	21	30 069	10,285
Nucléaire	0	0	0	1	31 ^b	0,048
Biofioul	0	0	0	0	0	
Biogaz	0	0	0	2	18	
Geoth	0	0	0	1	21	
Total	442	8 882		2 925	92 672	

^aValeur calculée sur la période 1970-1999

^bConcerne les victimes décédées dans les 2 mois après l'accident

Source: <https://sauvonsleclimat.org/fr/base-documentaire/les-impacts-sanitaires-des-differentes-sources-d-energie>

COP22 : la COP des solutions

2016: victoire des énergies fossiles solaires



MARRAKECH COP22 | CMP12 | CMA1
CONFÉRENCE DES NATIONS UNIES
SUR LES CHANGEMENTS CLIMATIQUES



La mise en service de la centrale solaire de Noor – Ouarzazate (580 MW) n'a pas réussi à éclipser la construction de la centrale charbon de Safi – Ouled Salmane (1320 MW)

Faute de stockage suffisant, derrière les centrales solaires se cachent des centrales thermiques (charbon ou gaz) de puissance égale ou supérieure. Donc la production combinée est majoritairement fossile.

COP22 : la COP des solutions

2016: victoire des véhicules électriques



MARRAKECH COP22 | CMP12 | CMA1
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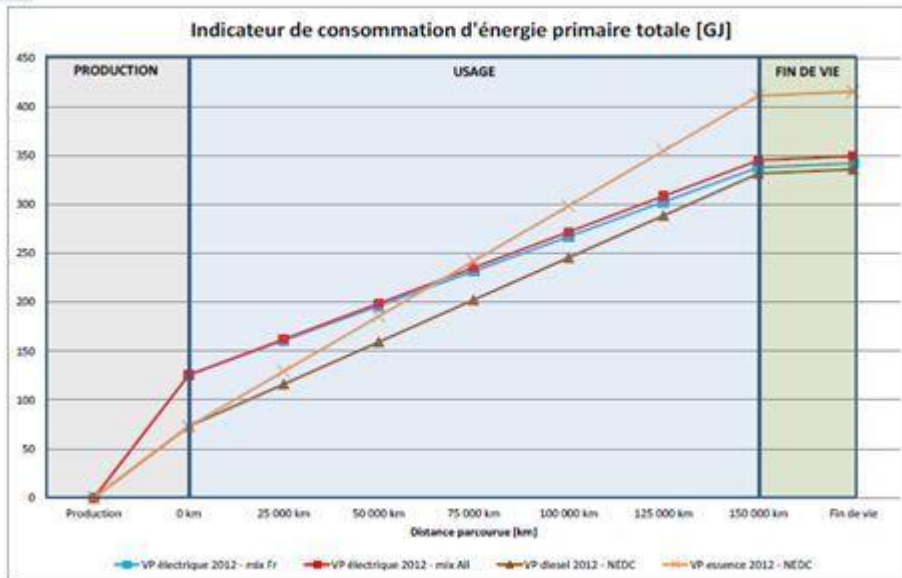
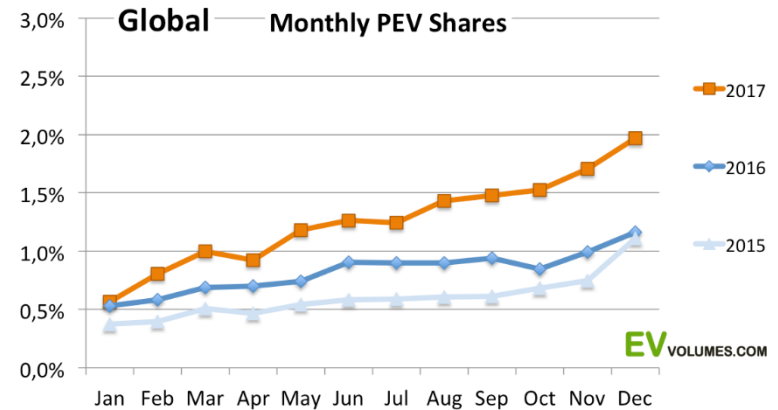


Figure 1-1 : Indicateur de la consommation d'énergie primaire totale pour les véhicules électriques français et allemand et les véhicules thermiques essence et diesel en 2012 selon le scénario de référence

... malgré des manipulations idéologiques tous azimuts.

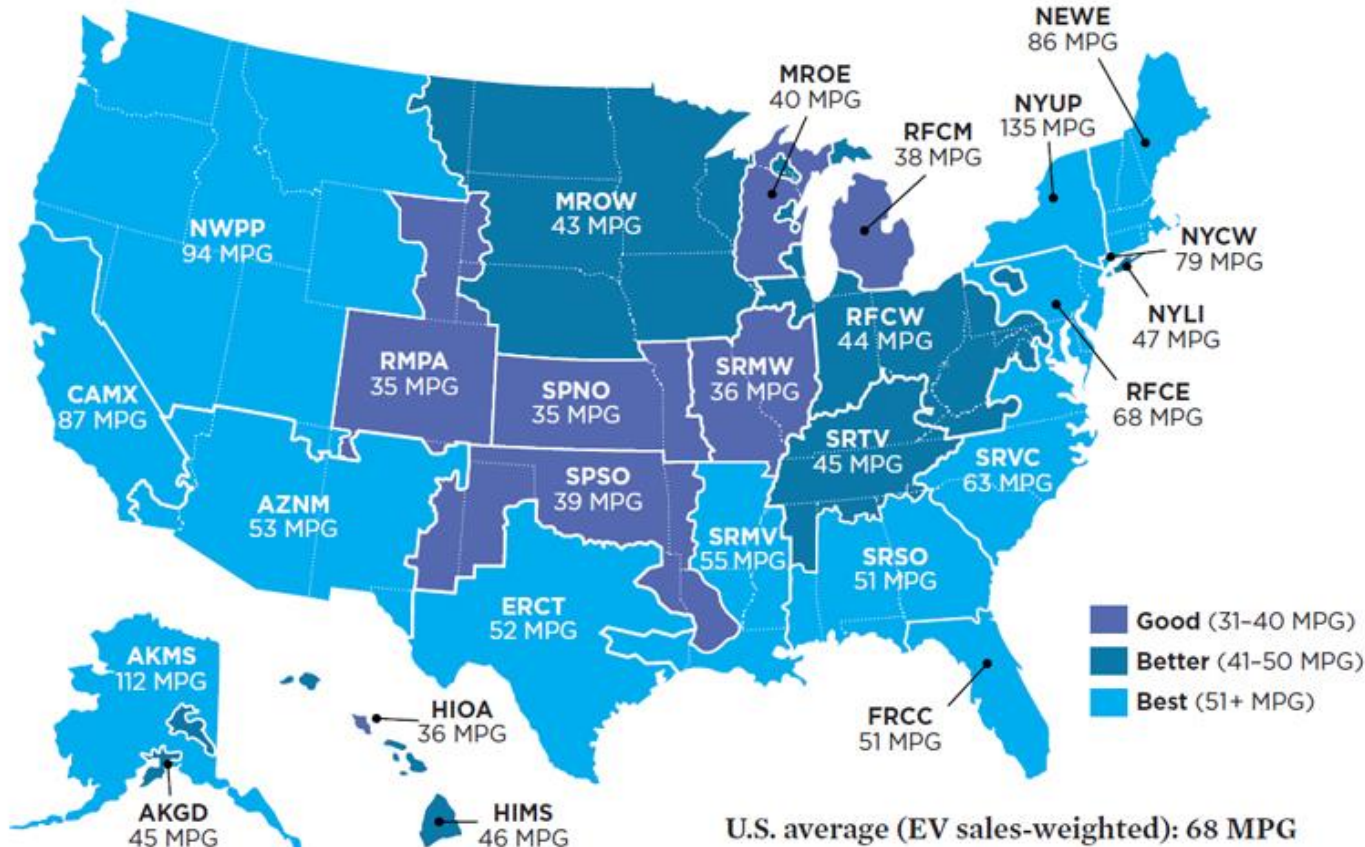
Exemple: l'ADEME a publié chaque année jusqu'en en 2013 des études à charge contre le bilan des VE.

Le graphique 2012 ci-dessous est basé sur le mix électrique très carboné... en Allemagne, alors que le mix électrique français était déjà décarboné à 90% !!!



Transports électriques (suite)

Electric Vehicle Global Warming Pollution Ratings and Gasoline Vehicle Emissions Equivalents by Region



- Mais en 2013-2015, plusieurs études avec des ACV très détaillées démentaient cette analyse partielle de l'ADEME.
- [Cleaner Cars from Cradle to Grave](#) (2015) – Union of Concerned Scientists



COP23 : un nouvel espoir

Carbon Fibre Stone®

THE FUTURE
OF BUILDING MATERIALS

#ONEPLANET

TCTF - TechnoCarbon Technologies France





COP24



KATOWICE

COP24 : diagnostic attendu

ipcc

INTERGOVERNMENTAL PANEL ON climate change



Le GIEC a été chargé par la COP de livrer le rapport SR15 sur l'objectif de +1.5°C

1. We're close to the line : nous sommes proches de la limite
2. 1.5C is risky : 1.5°C représente un risque
3. 2C is riskier : 2°C représente un risque bien plus grand
4. Les communautés pauvres ou côtières seront les plus touchées
5. Une réduction rapide et profonde des émissions est nécessaire
6. ...et surtout des émissions négatives...
- 7.

Source: <http://www.climatechangenews.com/2018/02/13/11-takeaways-draft-un-report-1-5c-global-warming-limit/>



COP24 : décisions ardues

3-14 Dec. 2018
Katowice, Pologne



COP24 · KATOWICE 2018
UNITED NATIONS CLIMATE CHANGE CONFERENCE

COP24 Vision (Poland)

One of the most important tasks of the 24th Session of the of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) will be to work out and adopt a package of decisions ensuring the full implementation of the Paris Agreement, in accordance with the decisions adopted in Paris (COP21) and in Marrakesh (CMA1.1). In the course of the 2018 Climate Summit, Poland would like to demonstrate how neutrality in terms of greenhouse gas emissions, i.e. a **balance between CO2 emissions and its sequestration by soils and forests**, can be attained.



Health risks in Europe

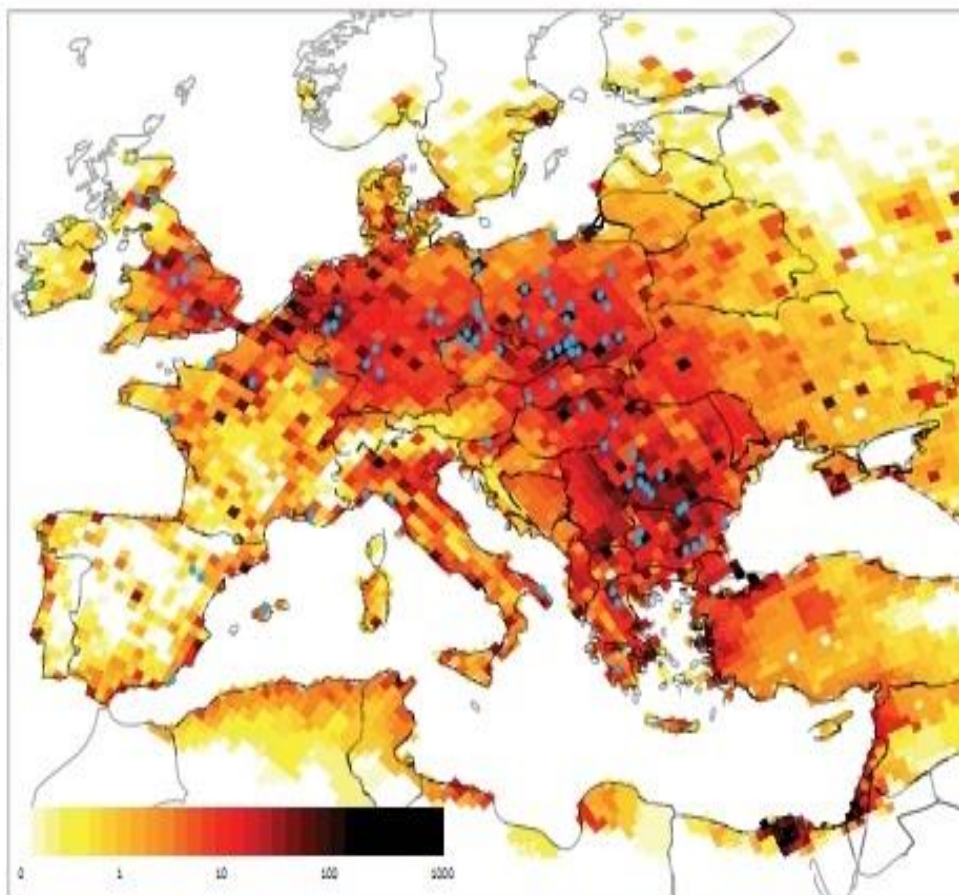
Source : Univ. Stuttgart IER

<http://docplayer.net/6593060-ler-assessment-of-health-impacts-of-coal-fired-power-stations-in-germany-by-applying-ecosenseweb.html>

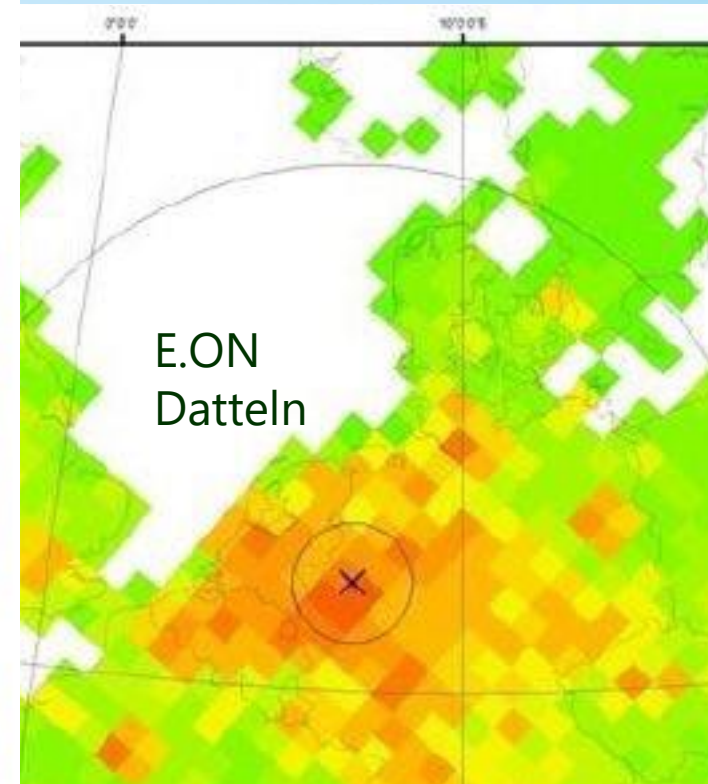
- ExterneE
www.externe.info

E.ON Datteln 4: Out of the total electricity produced, 413MW of traction current will be delivered to Deutsche Bahn's grid for its railway system.

Image: Virtually everyone in Europe is breathing in invisible pollution from coal-fired power plants' smokestacks, resulting in an estimated total of 22,000 deaths in 2010. The colours show the estimated number of deaths in each 50 x 60 km grid tile. The blue dots mark the locations of the 100 most polluting power plants in Europe.

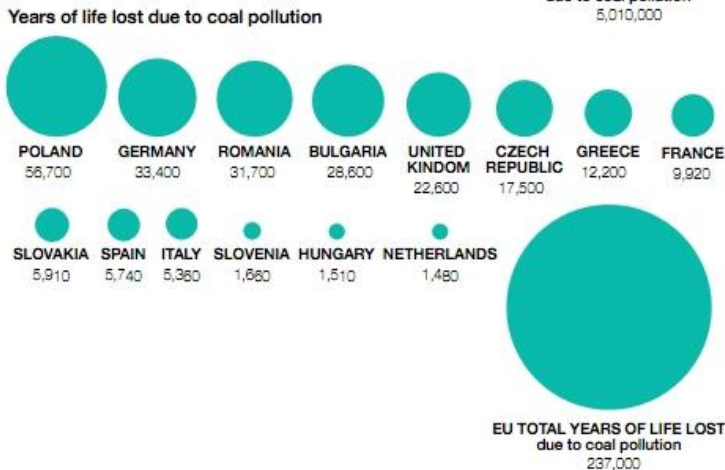
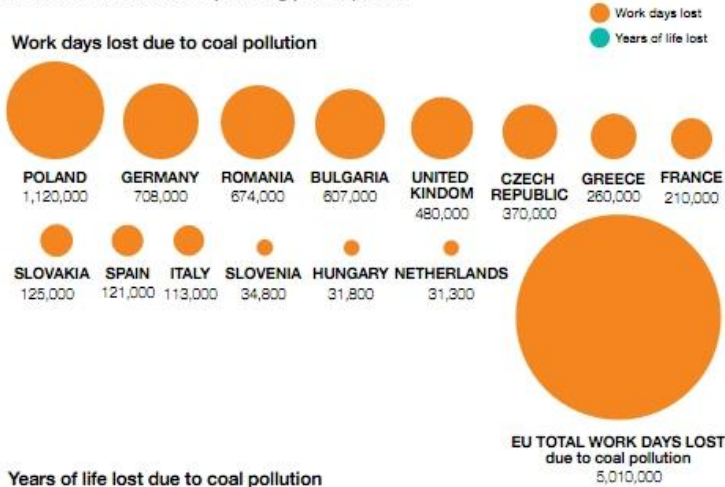


Map source: Greenpeace modeling using the EMEP MSC-W atmospheric chemistry-transport model, input data provided by EMEP and power plant emission data from the E-PRTR database.

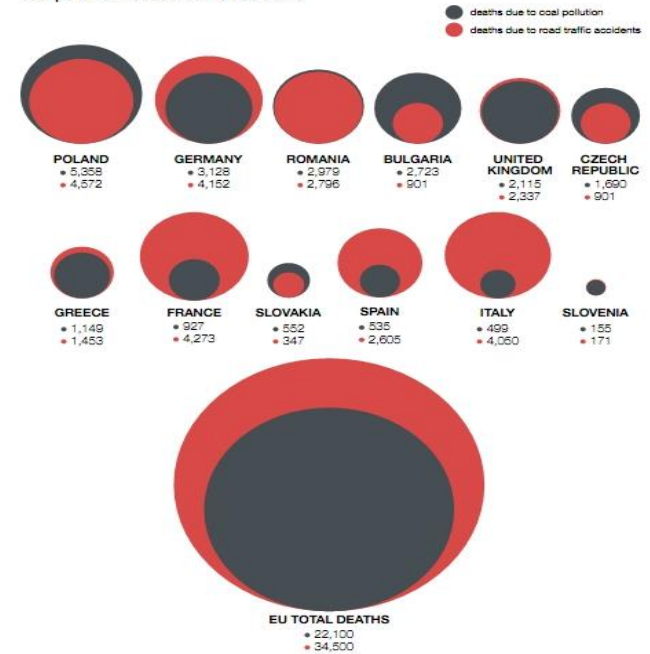


how important are those risks ?

Countries with the most polluting power plants



Deaths associated with coal pollution vs road traffic accidents

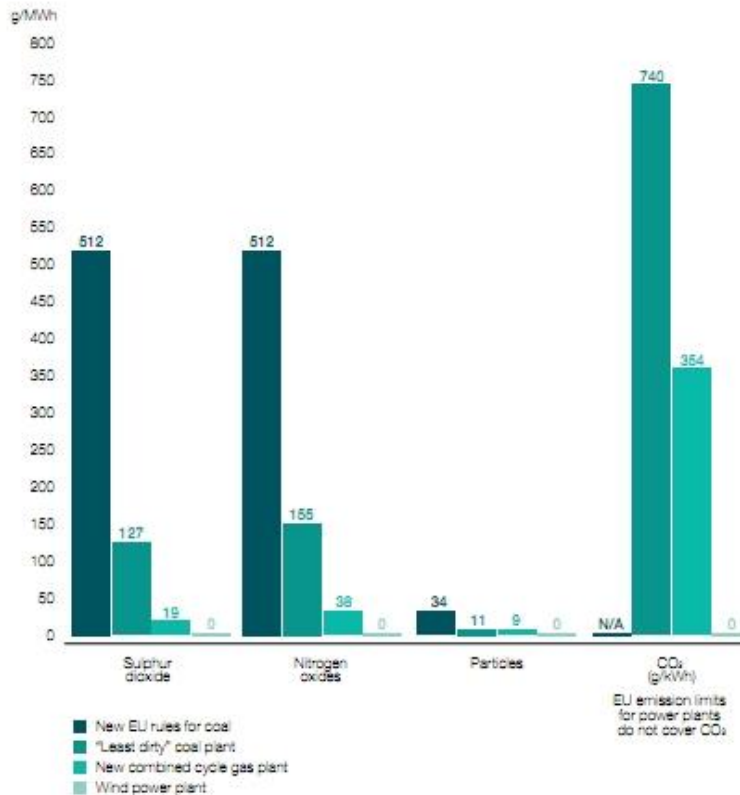


Sauvonsleclimat.org : source Univ. Stuttgart

Toxicity risks : types and quantities

Figure 1 EU's new air pollution rules for coal-fired power plants allow much higher emissions than can be achieved with best available technology, and more than 10 times higher emissions than a new gas-fired power plant.¹⁹

Even the "cleanest" coal is too dirty Emissions from coal, gas and wind compared



Sauvonsleclimat.org : souce Univ. Stuttgart

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 (PM_{2.5}) 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.

KEY

- Particle pollution
- Ozone
- Toxic metals

Health Impacts:

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

Physiological Effects:

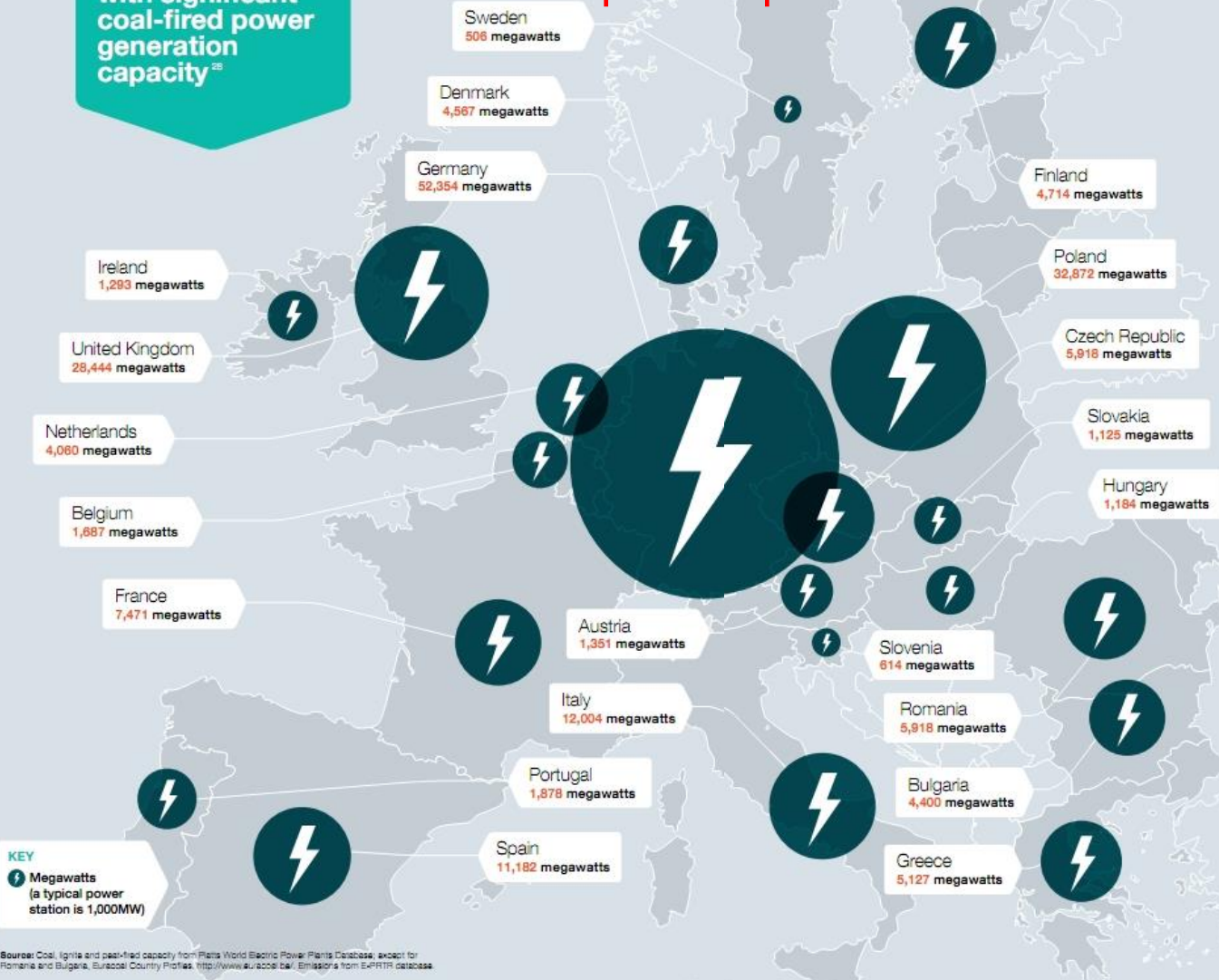
- Inflammation
- Increased coagulation
- Blood pressure

8. Silent Killers Why Europe must stop coal power with green energy

Source: Rudolf R et al (2011). Health effects of particulate air pollution: A review of epidemiologic evidence. Inhalation Toxicology 23(10): 555-592; Pope III CA & Coakley DW (2008). Health Effects of Fine Particulate Air Pollution: Lines that Connect. J Air & Waste Manage. Assoc. 58:709-742; US EPA. Six Common Air Pollutants. www.epa.gov/quality/urbanair; US EPA. Integrated Risk Information System (IRIS). www.epa.gov/iris

EU countries with significant coal-fired power generation capacity²⁸

Coal power plants



KEY
⚡ Megawatts
(a typical power station is 1,000MW)

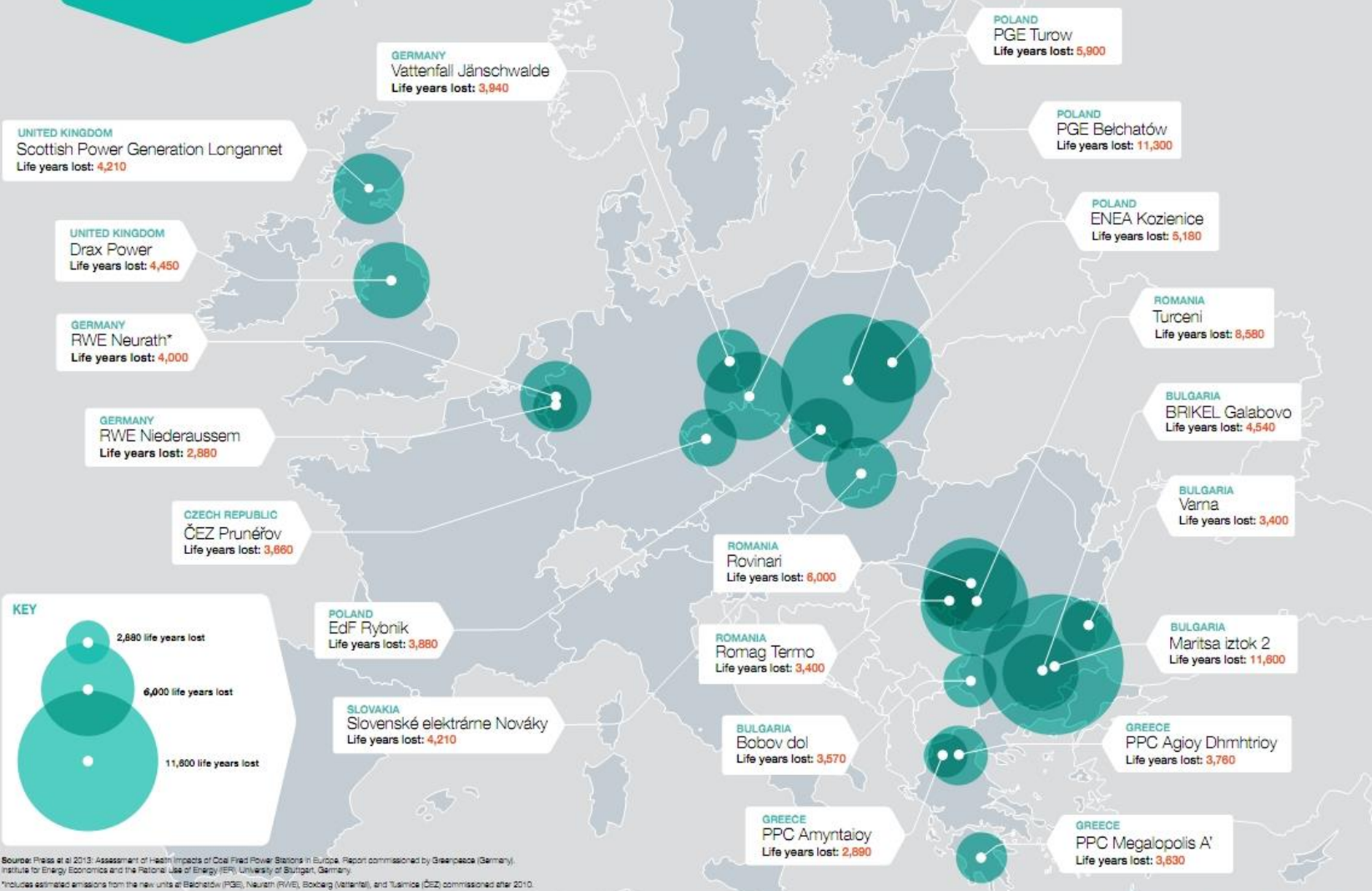
Approximately **300** large coal-fired power plants are in operation in the EU, producing a quarter of all electricity consumed. These power plants are responsible for over **70%** of the EU's sulphur dioxide emissions and over **40%** of nitrogen oxide emissions from the power sector. They account for approximately **HALF THIRD** of all industrial mercury emissions, and a **QUARTER** of Europe's CO₂ emissions

Source: Coal, lignite and peat-fired capacity from Platts World Electric Power Plants Database, except for Romania and Bulgaria, Eurostat Country Profiles, <http://www.eurostat.eu/>; Emissions from EAPRTS database



The dirtiest power plants in the EU

Problem 1: dirtiest power plants



Source: Peiss et al 2013, Assessment of Health Impacts of Coal-Fired Power Stations in Europe, Report commissioned by Greenpeace (Germany), Institute for Energy Economics and the Rational Use of Energy (IER), University of Stuttgart, Germany.
 *Includes estimated emissions from the new units at Bełchatów (PGE), Neurath (RWE), Bobov (Vattenfall), and Tuimiso (ČEZ) commissioned after 2010.

New coal-fired power plants under construction or being planned in the European Union

Problem 2: new power plants



KEY
 Megawatts
 (a typical power station is 1,000MW)

The Stuttgart University report projects that if these

50

power plants go into operation, another

32,000

life years would be lost each year—translating to a total of

1,3 million

life years over an operating lifetime of 40 years, barring significant increases in pollution control requirements. These power plants would also

emit as much CO₂ as Spain adding 7%

to EU's CO₂ emissions. This would make it much harder to cut CO₂ emissions fast enough to prevent catastrophic climate change by at least 30% by 2020.

Source: Information compiled by Greenpeace International and European Climate Foundation.

What do health risks from coal power plants mean for people?

Source: Prof. Dr. Roland Masse, French Science Academy & Académie des Technologies

- GHG and black carbon : climate change health impact
- Toxic chemicals : acids, dioxin and metals
- Particle/soot : a major factor of air pollution
- Radioactivity : much larger than NPPs in Europe !!!

Toxic waste from coal-burning power plants, directly into your air

Source: Prof. Dr. Roland Masse, French Science Academy & Académie des Technologies

	mg/kWh _e	ratio 94/90
Coal-fired		
Arsenic	3.17E-02	0.92
Beryllium	3.71E-03	1.11
Cadmium	1.73E-03	0.95
Chromium	3.81E-02	0.84
Lead	3.93E-02	0.82
Manganese	8.53E-02	1.02
Mercury	2.38E-02	1.12
Hydrogenchloride	7.44E+01	0.94
Hydrogenfluoride	1.01E+01	1.18
Dioxin(TEQ)	5.05E-08	1.25
n-nitrosodimethylamine	3.04E-03	1.04

Toxic waste from fossil fuels : extrapolated relative weight & costs

Source: ExternE Pol 2005

Table 9. Damage factors per ton of pollutant emitted in EU15.

Species	Damage factors [€ ₂₀₀₀ /ton]
CO ₂ -equiv.	19
SO ₂	2939
NO _x	2908
PM ₁₀	11723
PM _{2.5}	19539
Arsenic	80000
Cadmium	39000
Chromium	31500
Chromium-VI	240000
Chromium-other	0
Lead	1600000
Nickel	3800
Formaldehyde	120
NM VOC	1124
Nitrates, primary	5862
Sulfates, primary	11723
Radioactive emissions	50000 * [€ ₂₀₀₀ /DALY]

* Disability-Adjusted Life Years (DALY), assuming equal to the unit value of chronic YOLL.

Table 3.6 Estimated damage costs aggregated by pollutant group (2005 prices)

Pollutant group	Aggregated damage cost (billion EUR)
CO ₂	63
Regional air pollutants (NH ₃ , NO _x , PM ₁₀ , SO ₂ , NMVOCs)	38-105
Heavy metals (As, Cd, Cr, Hg, Ni, Pb)	0.35
Organic micro-pollutants (benzene, dioxins and furans, PAHs)	0.13

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Health cost from fossil fuel emissions : mostly coal+transportation

Source: New Ext 2004 / 450 000 people per year die from ignorance/political loophole

Table 45: Mortality effects and total damage costs due to human health effects caused by emissions within the EU-25 in 1998

Substance	Total anthropogenic emissions within the EU-25		Public power, cogeneration and district heating plants within the EU-25	
	Mortality effects [years of life lost]	Human health damage costs ¹ [million Euro ₂₀₀₀]	Mortality effects [years of life lost]	Human health damage costs ¹ [million Euro ₂₀₀₀]
Inside the EU-25				
Nitrates	700,000	53,000	74,000	5,500
Sulfates	510,000	38,000	290,000	22,000
Primary Particles (PM ₁₀)	820,000	62,000	50,000	3,700
Ozone and SO ₂	32,000	7,500	10,000	290
Total (rounded)	2,070,000	160,000	420,000	31,000
Outside the EU-25				
Nitrates	70,000	4,000	8,000	700
Sulfates	80,000	7,000	50,000	3,000
Primary Particles (PM ₁₀)	20,000	1,000	5,000	400
Ozone and SO ₂	6,000	1,800	1,000	140
Total (rounded)	170,000	10,000	70,000	5,000

¹ includes mortality as well as morbidity effects

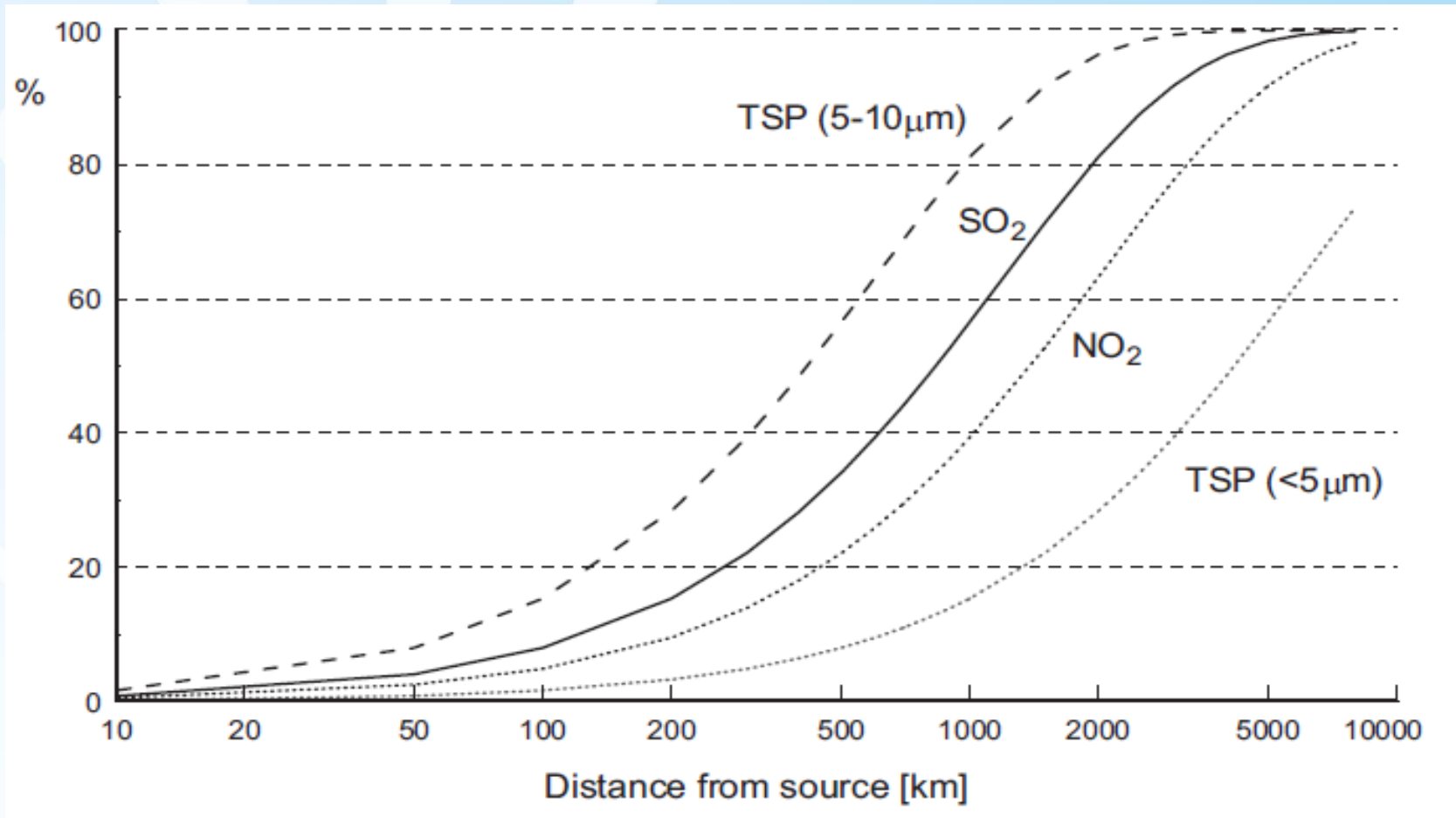
An inconvenient truth: coal has been left unchecked while nuclear power was executed without a fair trial

Source: Markandya, The Lancet 2007, Table 2, Health effects of electricity generation in Europe by primary energy source (deaths/cases per TWh)

	Accidents	Mortalité/Deaths per TWh	Morbidité ++ Serious illness	Morbidité +/- Minor illness
Lignite	0,12	32,6 8,2-130	298 74,6-1193	17.676 4419-70.704
Charbon/coal	0,12	24,5 6,1 -98	225 56,2-899	13.288 3222-53150
Pétrole / oil	0,03	18,4 4,6-73,6	161 40,4-645,6	703 176-2813
Biomasse / biomass	—	4,6 1,16-18,5	43 10,8-172,6	2.276 579-9104
Gaz / Natural Gas	0,02	2,8 0,70-11,2	30 7,48-120	9.550 2388-38.204
Nucléaire /nuclear power	0,02	0,05	0,22	(70) extrapol.

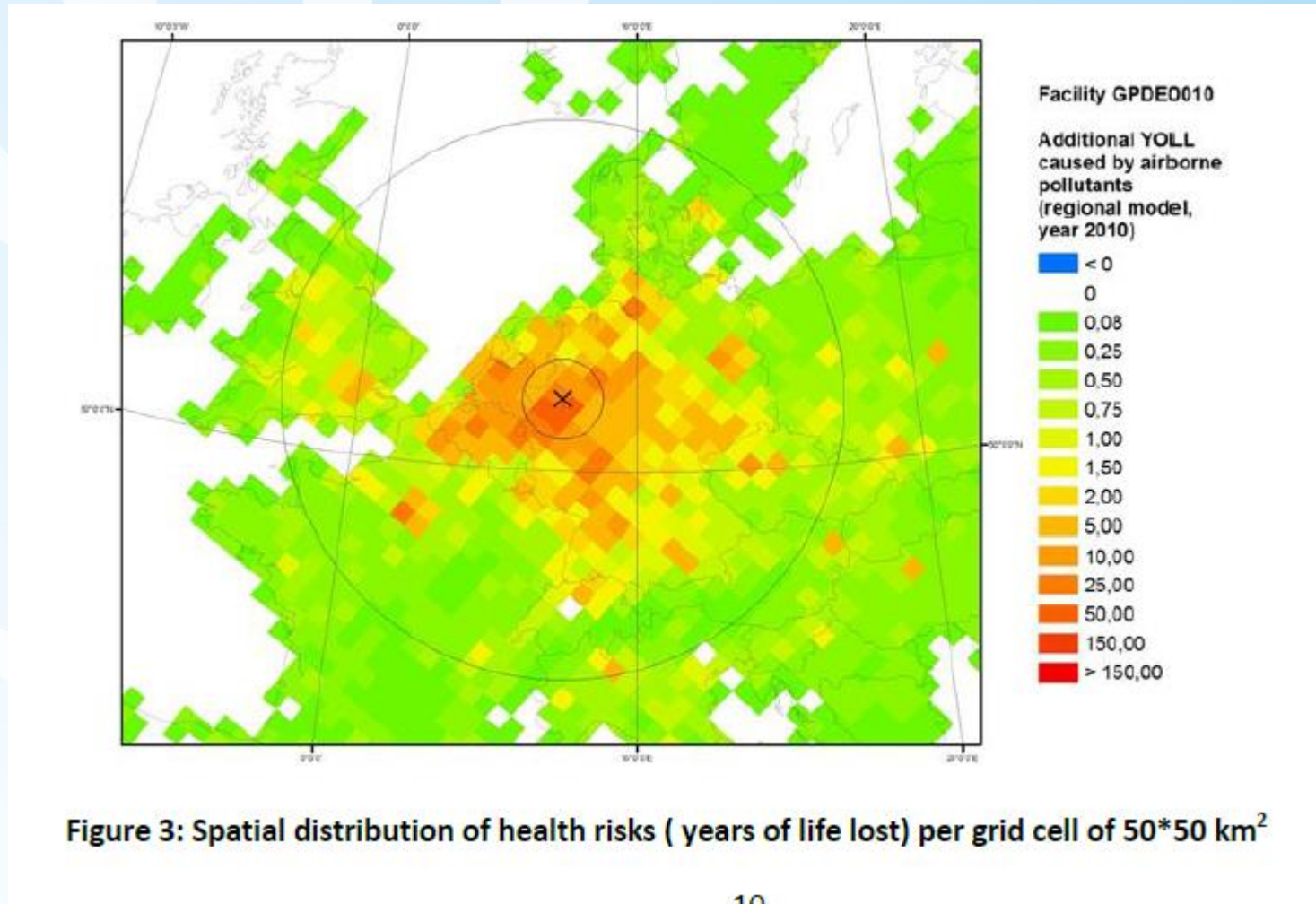
Health impact location

Source: ExternE Methodology Update EC 2005



Exosense model used to assess/predict impact of existing/new plant

Source: Priess et al 2013



Particulate emissions in Germany : climate & health issue

Source: ExternE 2010, health cost per microgram/m³ per person



Particulate Matter < 2.5µm, i.e. PM2.5		
Life expectancy reduction – years of life lost	6.51*10 ⁻⁰⁴	years
net restricted activity days (NetRAD)	9.59*10 ⁻⁰³	days
Work loss days (WLD)	1.39*10 ⁻⁰²	days
Minor restricted activity days (MRAD)	3.69*10 ⁻⁰²	days
Particulate Matter < 10 µm, i.e. PM10		
Increased mortality risk (infants)	6.84*10 ⁻⁰⁸	cases
New cases of chronic bronchitis	1.86*10 ⁻⁰⁵	cases
Respiratory hospital admissions (RHA)	7.03*10 ⁻⁰⁶	cases
Cardiac hospital admissions (CHA)	4.34*10 ⁻⁰⁶	cases
Medication use / bronchodilator use (child)	4.03*10 ⁻⁰⁴	cases
Medication use / bronchodilator use (adult)	3.27*10 ⁻⁰³	cases
Lower respiratory symptoms (adult)	3.24*10 ⁻⁰²	days
Lower respiratory symptoms (child)	2.08*10 ⁻⁰²	days

<u>Germany</u>	<u>YOLL</u>	<u>WLD</u>
under construction & planned	11860	251031
in operation	33473	707803

After Externe ...NEEDS 2010, DENSL14583 : 2015 Subsidies and Costs of EU Energy

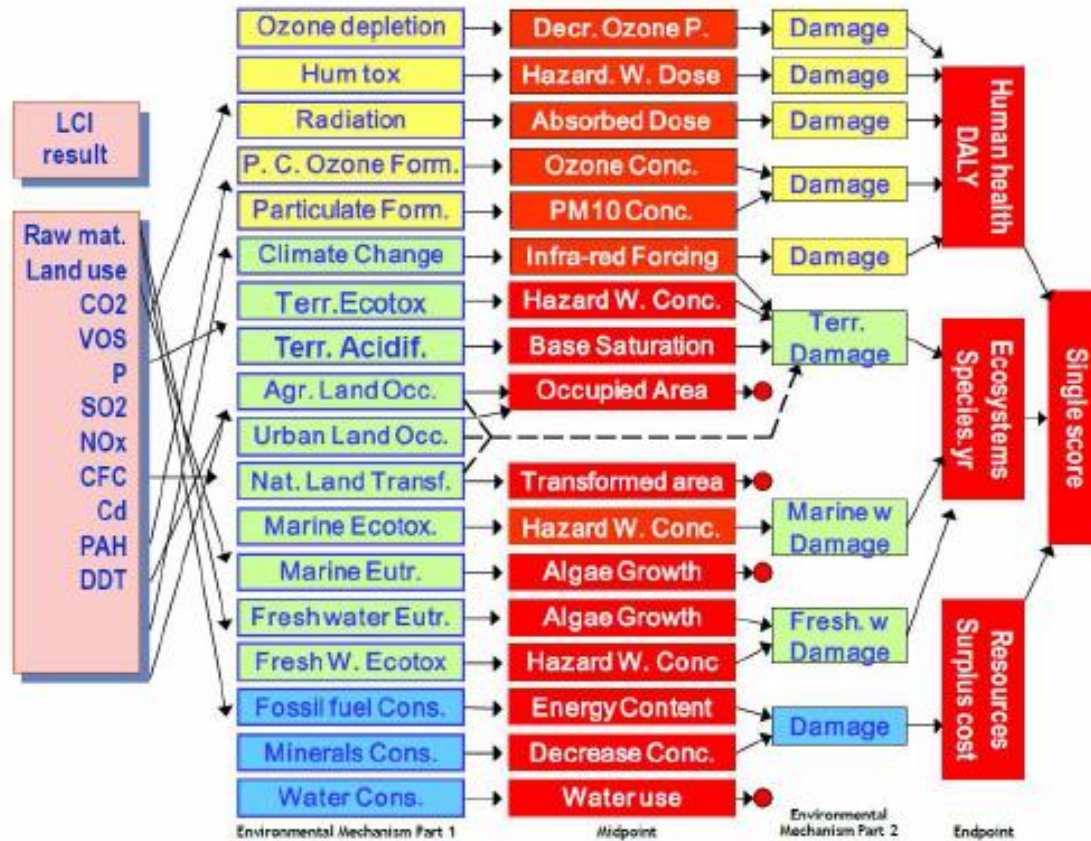


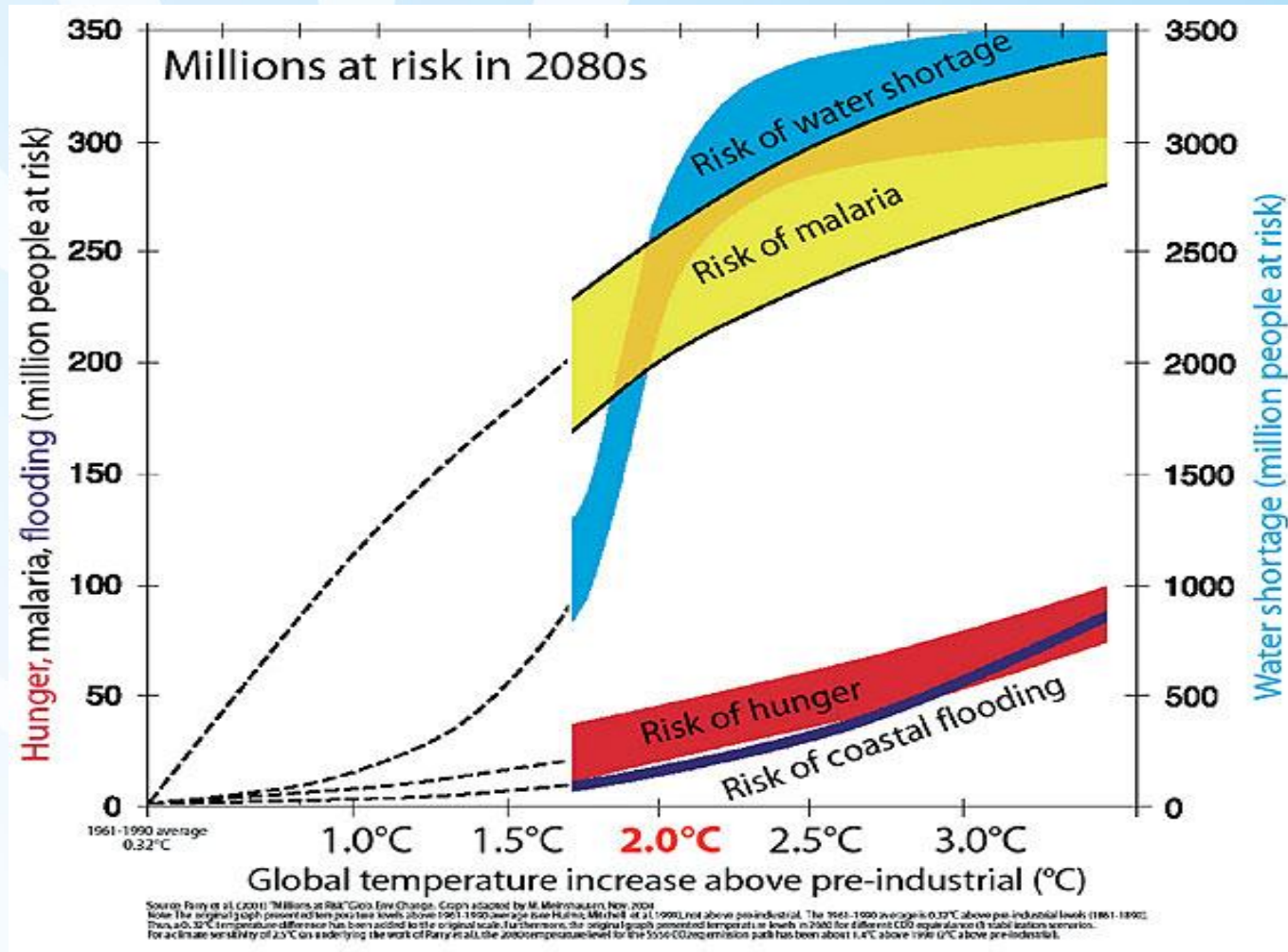
Figure A3-1 Relationships between impact categories, environmental mechanisms, midpoints, damages and endpoints in the ReCiPe framework [Recipe, 2013]

As shown in Figure A3-1 we use three main endpoints:

- Human health damages – as measured in Disability Adjusted (lost) Life Years (DALYs);

Health effects due to climate change will add up in time

Source: Parry et al. 2001



Conclusion

Health effects of climate change are still widely ignored

Health effect of climate change causes have been downplayed

It's time for people, governments and NGOs to become serious about this...

... and make the right decisions to tackle the problem and implement SOLUTIONS

For now, sign the petition #ExitCoalNow

on : <https://ExitCoalNow.org>