UNECE

Towards Cleaner Air

Scientific Assessment Report 2016: Summary for Policymakers

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Brussels

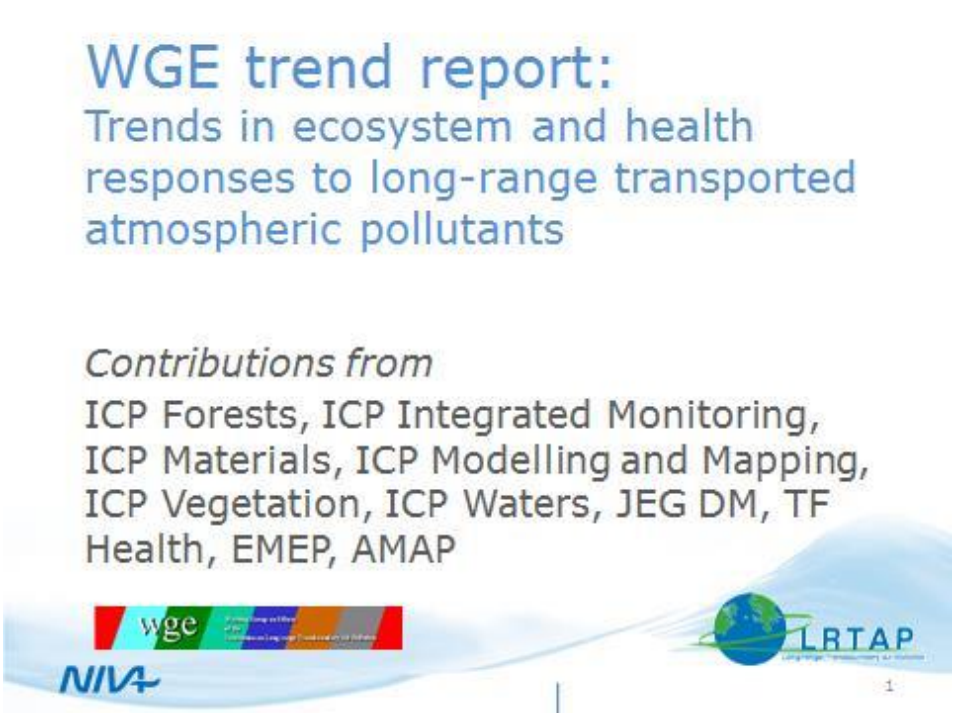
Acknowledgements

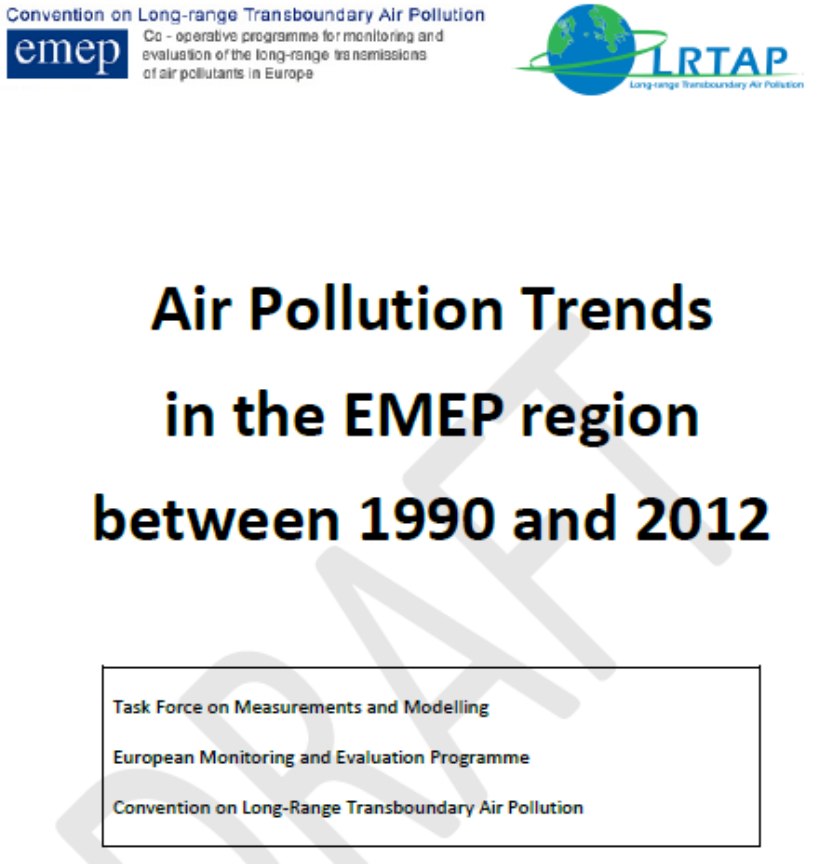
All networks: bodies under WGE, EMEP, AMAP, Task Forces, (inter)national monitoring
Individuals who contributed text, ideas, opinions, reviewers

ICP Forests
Task Force on Health
ICP Integrated Monitoring
ICP Materials
emep
ICP Waters
ICP Modelling & Mapping
ICP Vegetation
AMAP
JEG Dynamic Modelling
NIVA
wge
LRTAP

Supported by: Nordic Council of Ministers, Switzerland, Germany. Norway, Sweden/IVL, Netherlands/RIVM, MSC-W, MSC-E,IIASA/CIAM, CEIP, JRC, INERIS, CEH, WHO, CCE

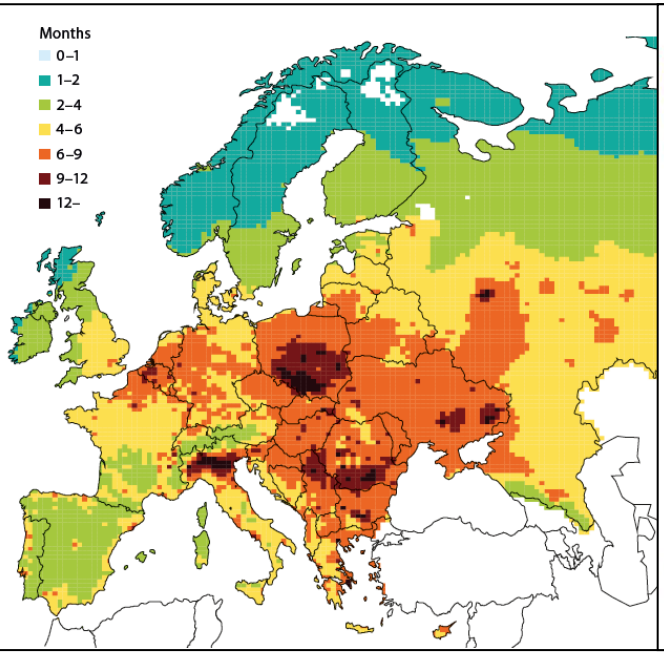
Background documents



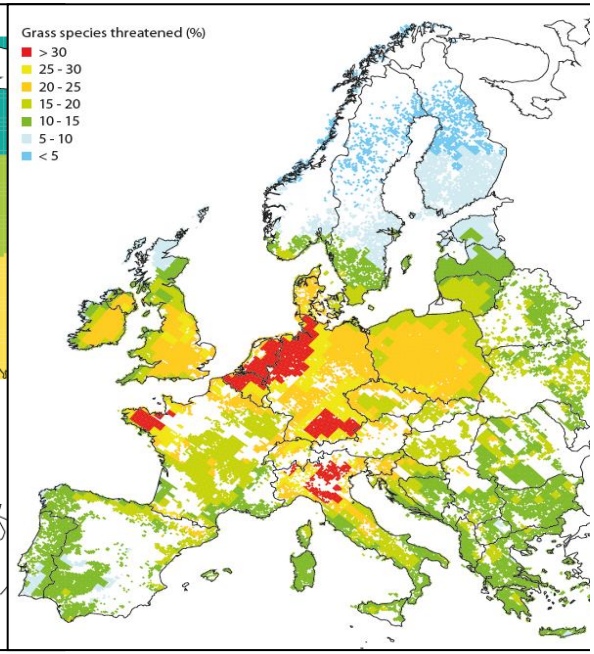


U.S. EPA & Environment and Climate Change Canada: Scientific Assessment Report 2016: North America"

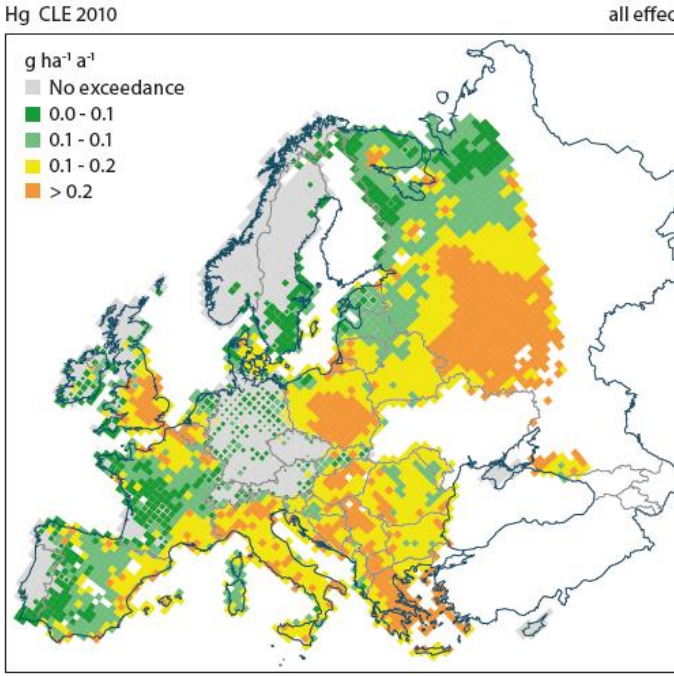
1. Air pollution still causes serious damage to health and ecosystems



Loss of life expectance (months)



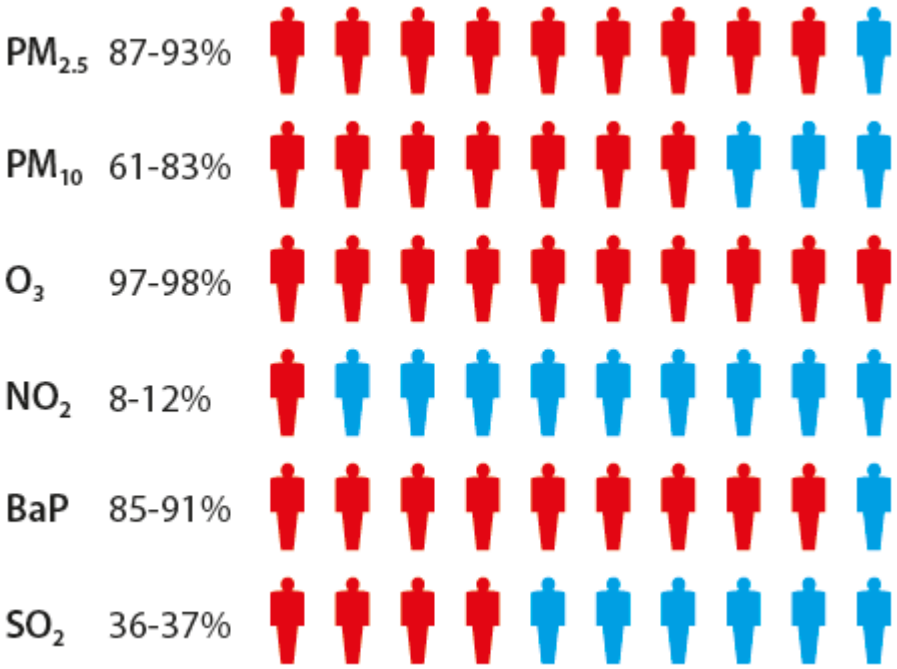
Plant species loss (% threatened)



Mercury accumulation in soil (CL-exceedance)

unfinished work:
particulate matter, nitrogen, ozone, HM&POP

Majority of the EU population is exposed to concentrations above WHO guideline levels



2. Air pollution remains an international problem

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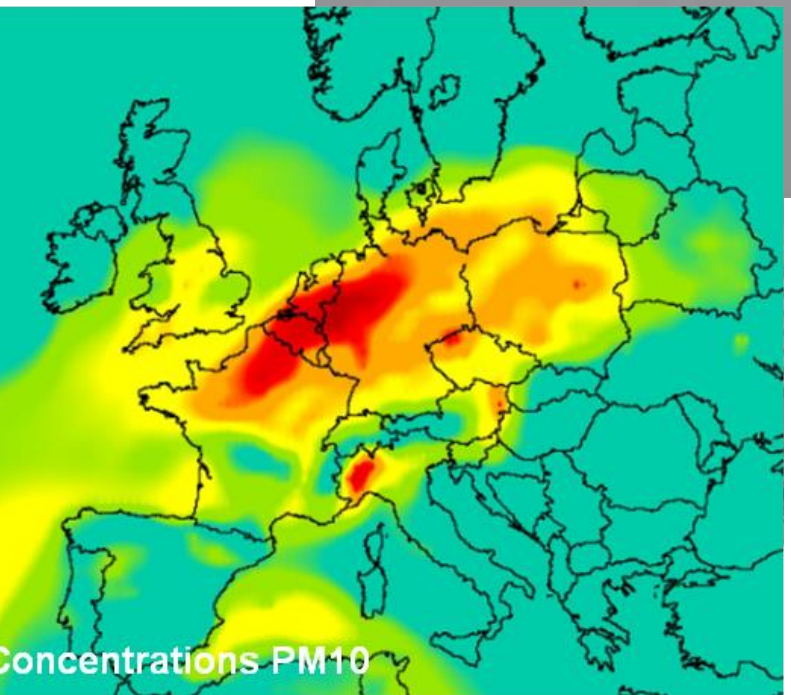
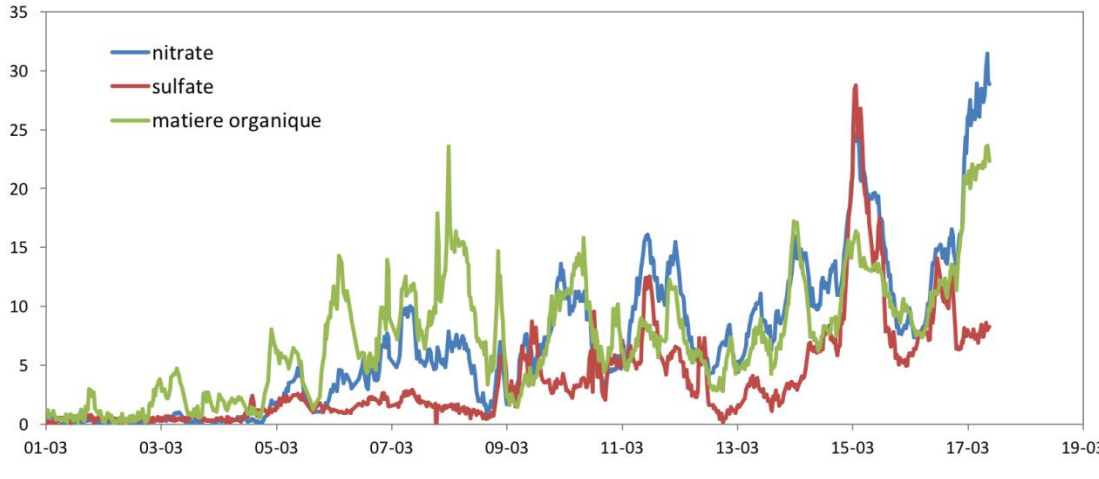
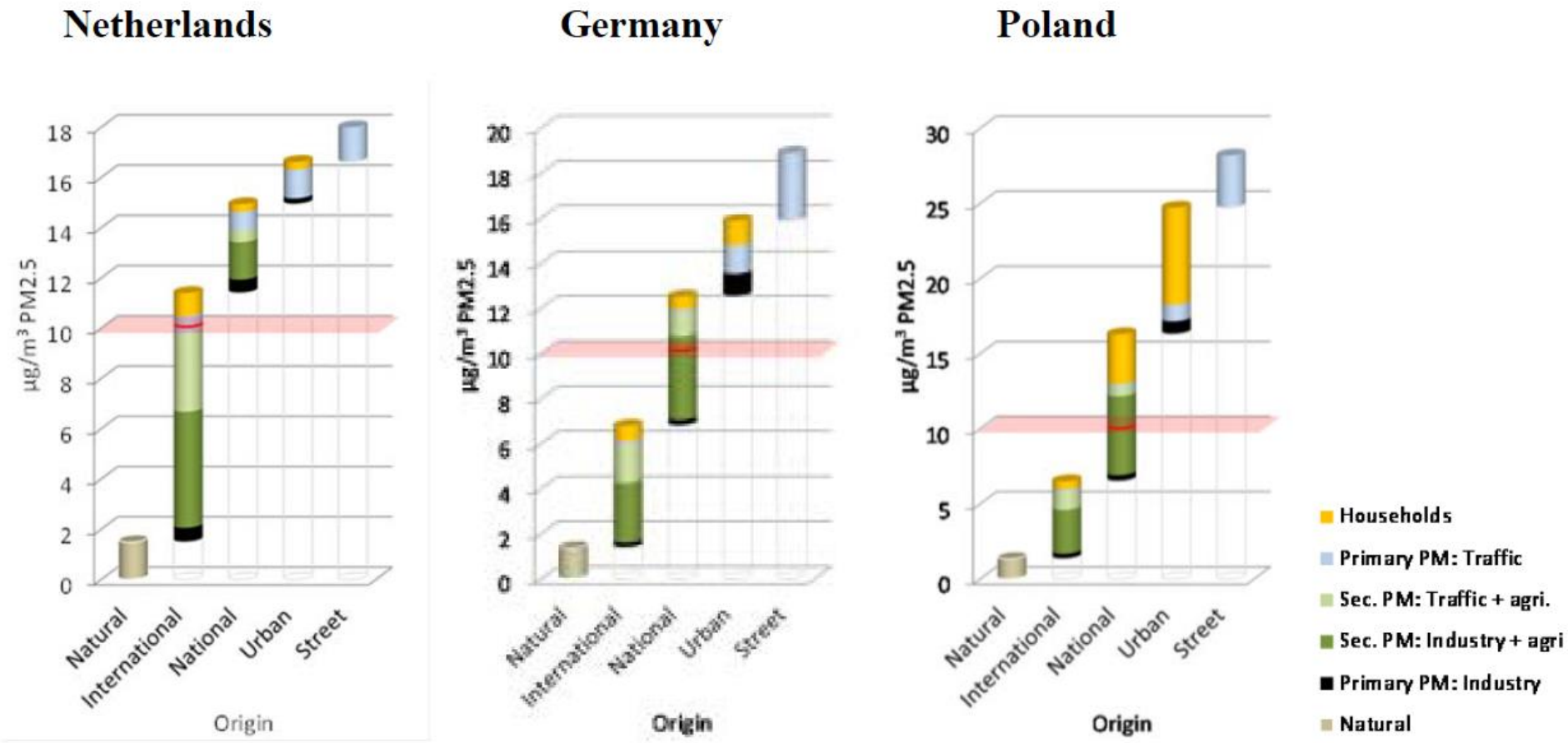


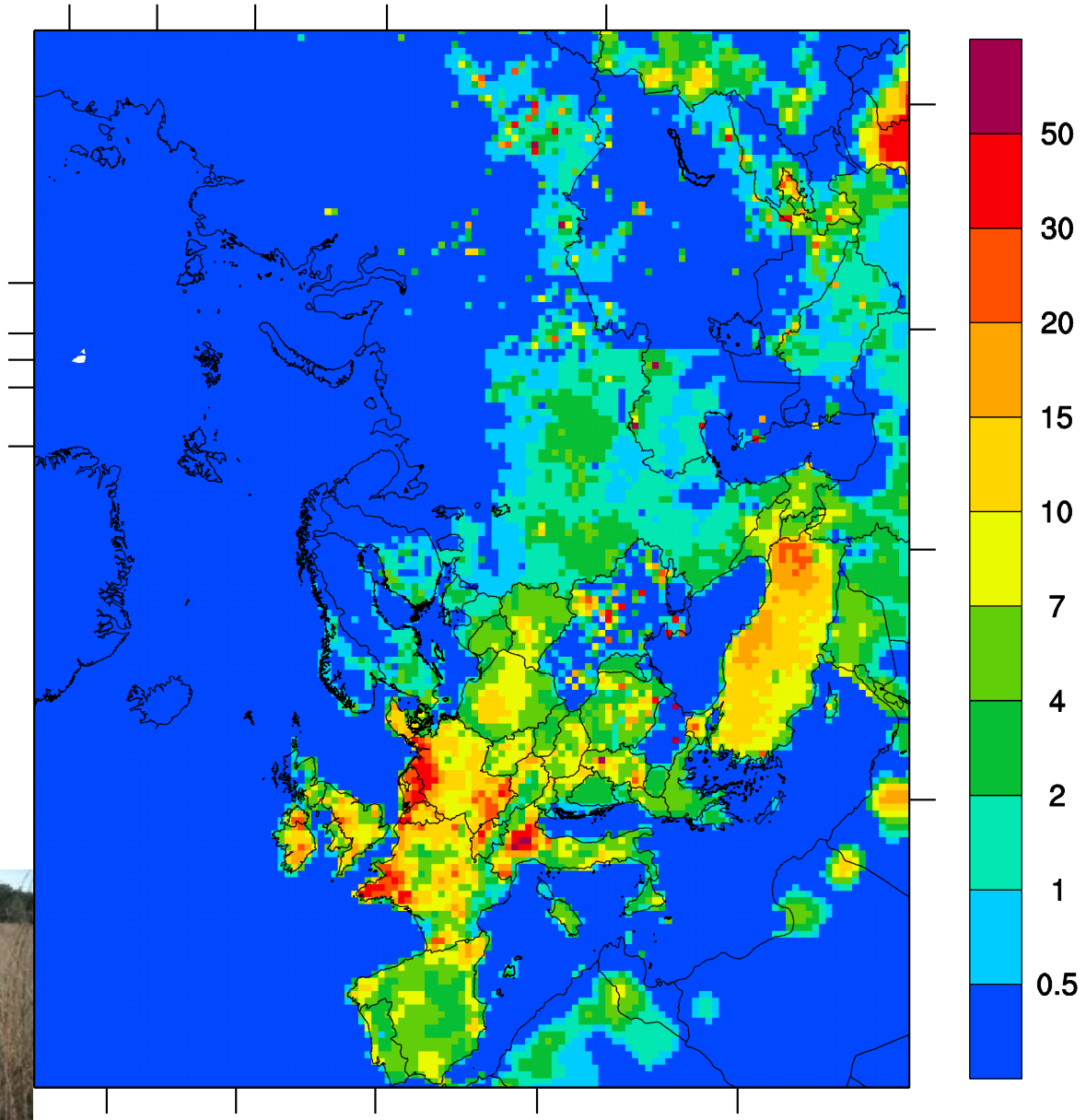


International cooperation is needed to reduce secondary particulate matter



Local measures alone will often be insufficient to meet WHO guideline levels

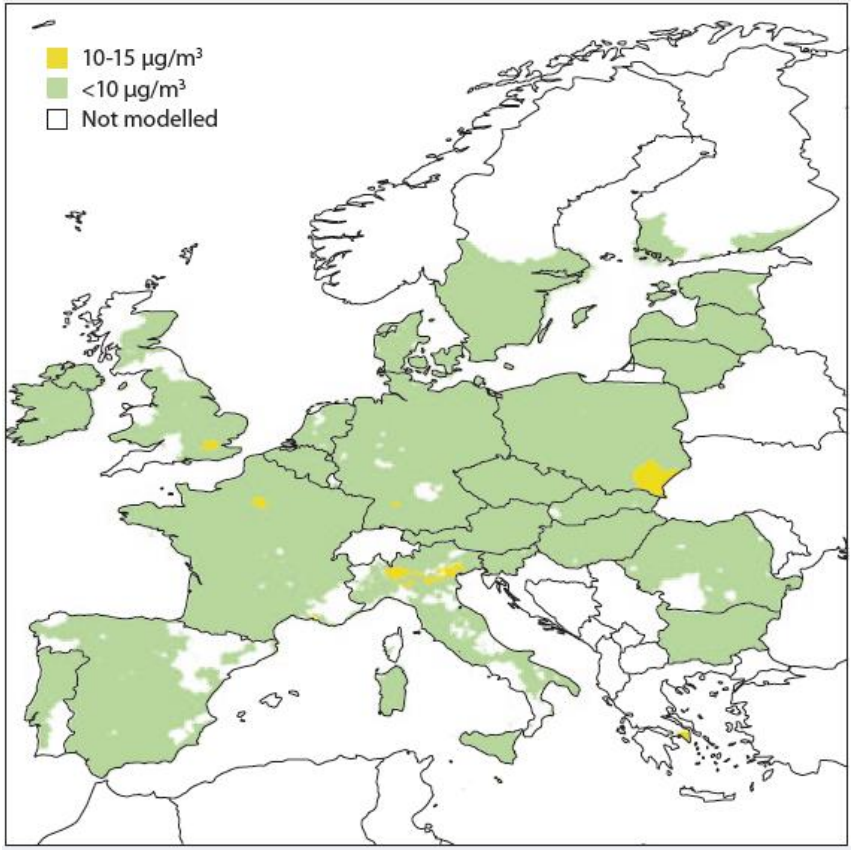
Ammonia emission reduction will have transboundary impacts: reduced urban PM-exposure and biodiversity protection



NH3 emissions in 2013 (EMEP)

3. Solutions are available

Possible actions to meet WHO PM2.5 guideline levels



2050 scenario:
with climate & energy policy + MFR-measures, WHO PM2.5-guidelines can be met almost everywhere

Continental

1. Ensure Euro-6 standards work in reality
2. Implement climate & energy targets
3. Set emission-standards for e.g. wood burning
4. Set emission-standards e.g. for large cattle farms

National

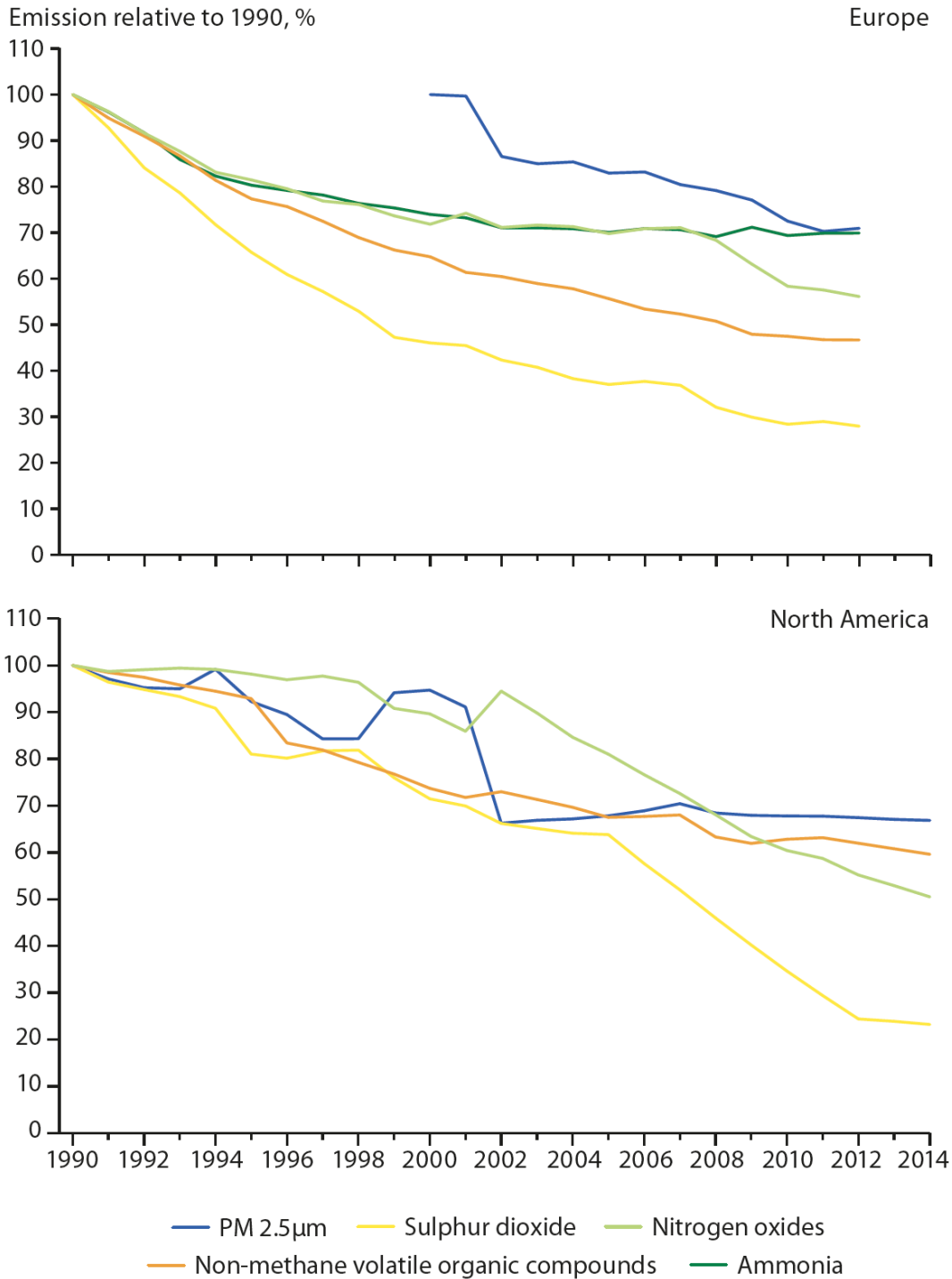
1. Ratify LRTAP Protocols
2. Control on maintenance of Euro-6 vehicles
3. Scrapping schemes for old vehicles/motorcycles
4. Enforce (agricultural) emission regulation

Cities

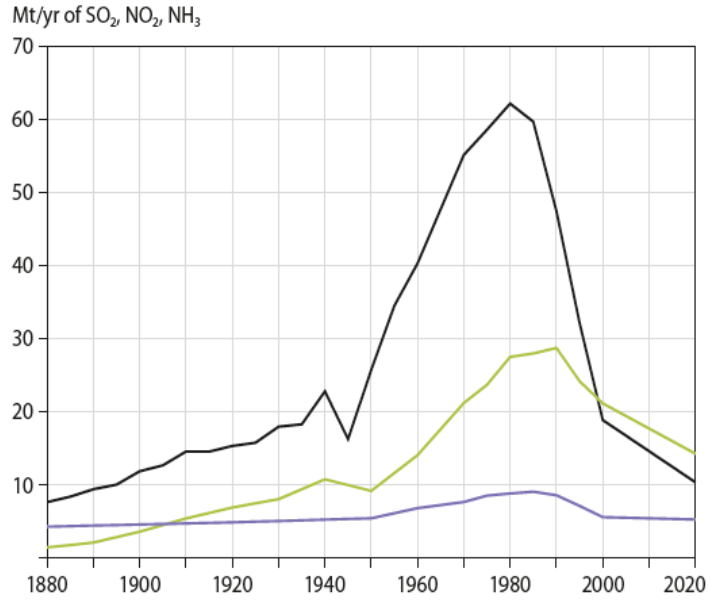
1. Low emission zones
2. Stimulate electric vehicles
3. Set speed limits (highways)
4. Healthy city design
   – walking/cycling/public transport

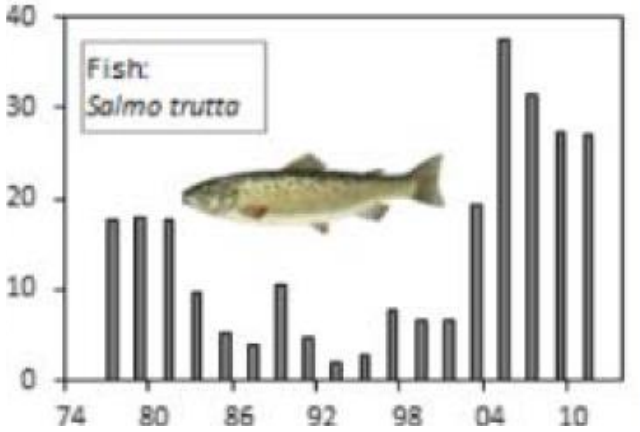
4. There is a succcesful policy arena

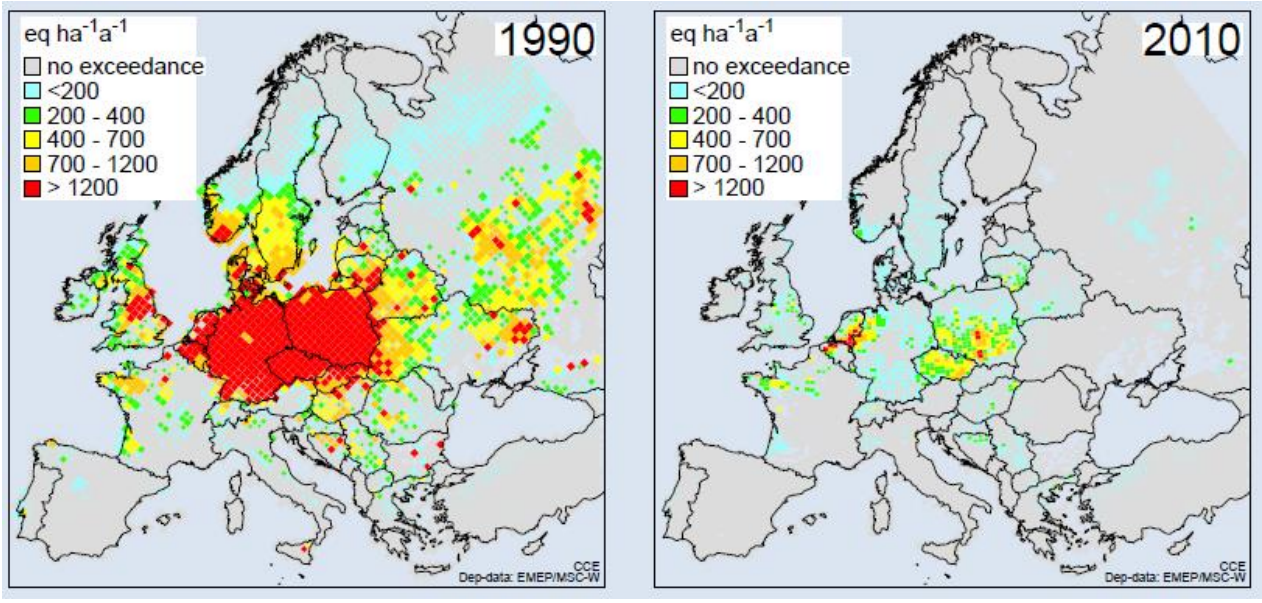
Some pollutants seemed easier to reduce than others



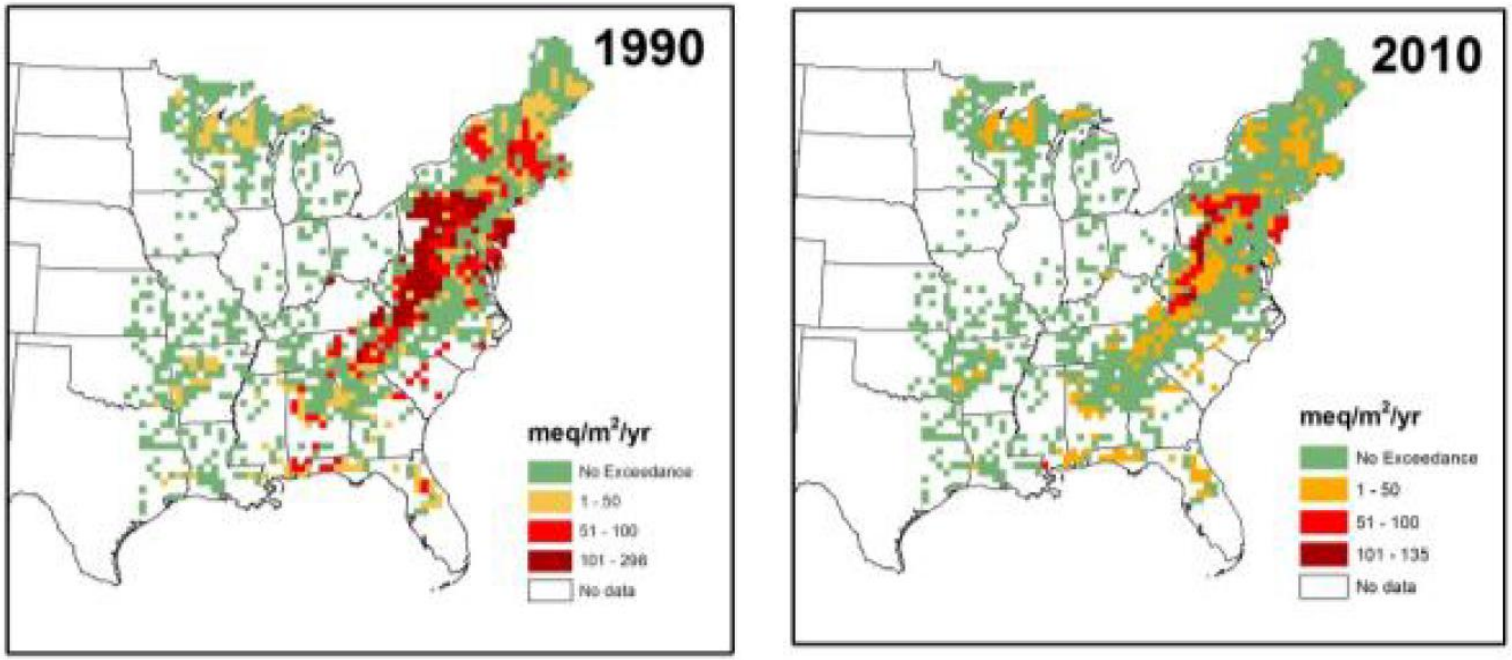
Acidification: large improvements



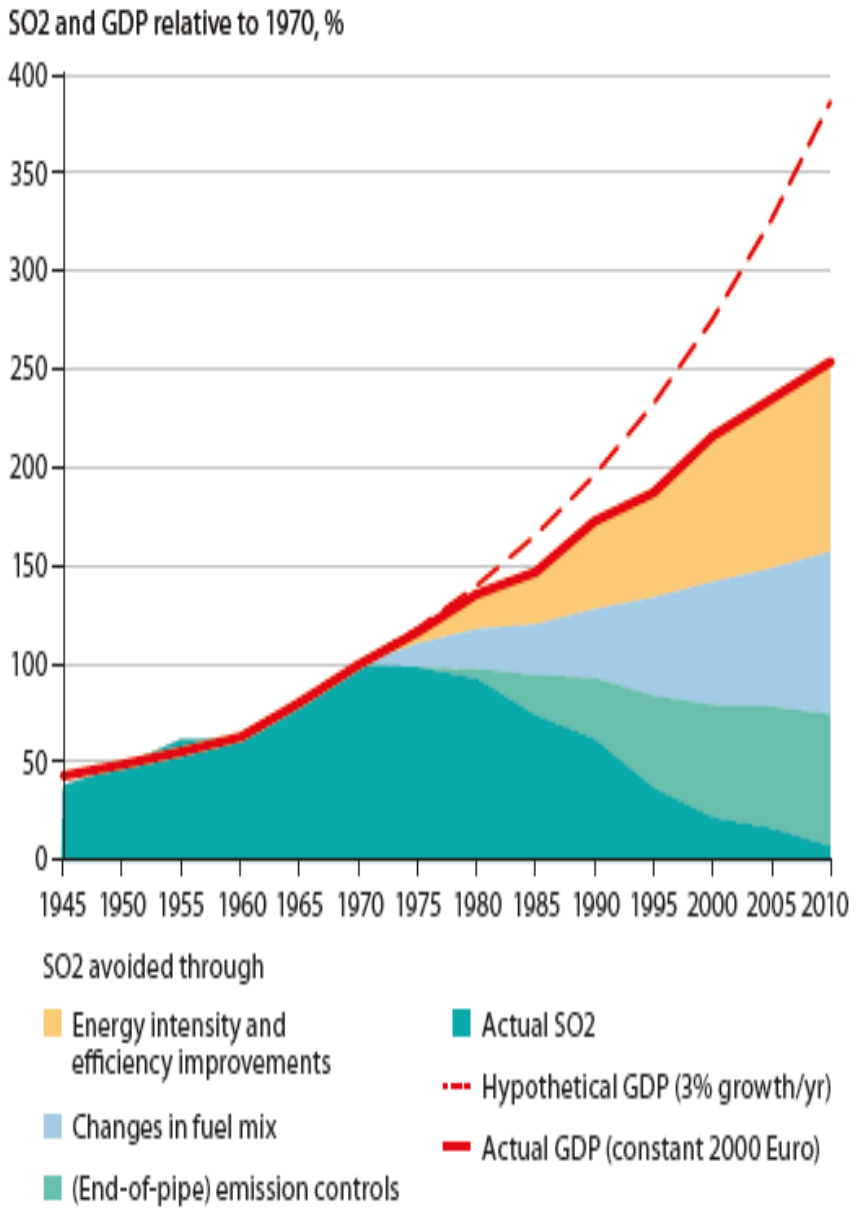




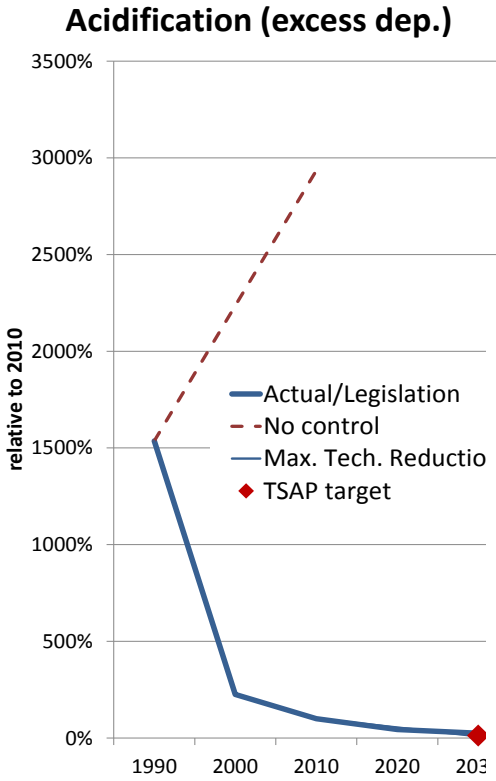
Exceedance of critical loads for acidification on streams and lakes in the U.S.



How would the world have looked without abatement policy?

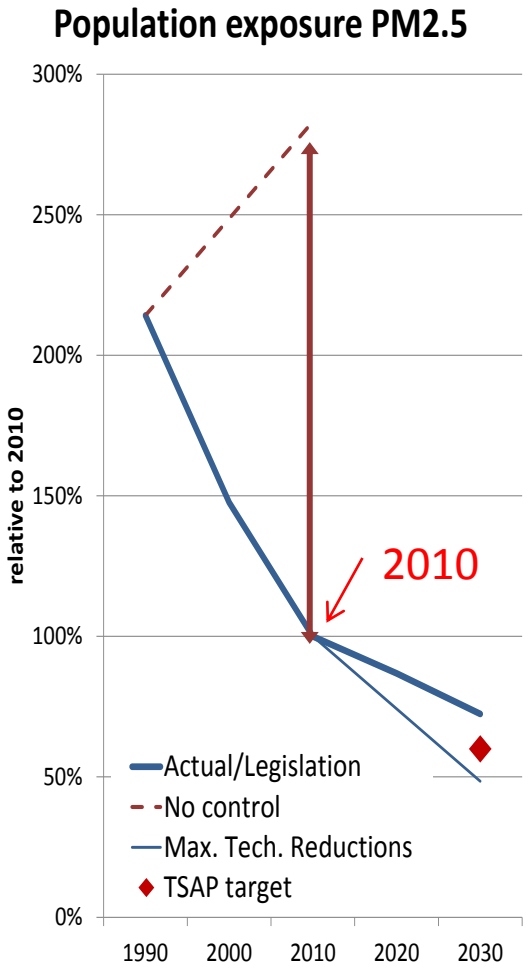


Rafaj et al , 2014



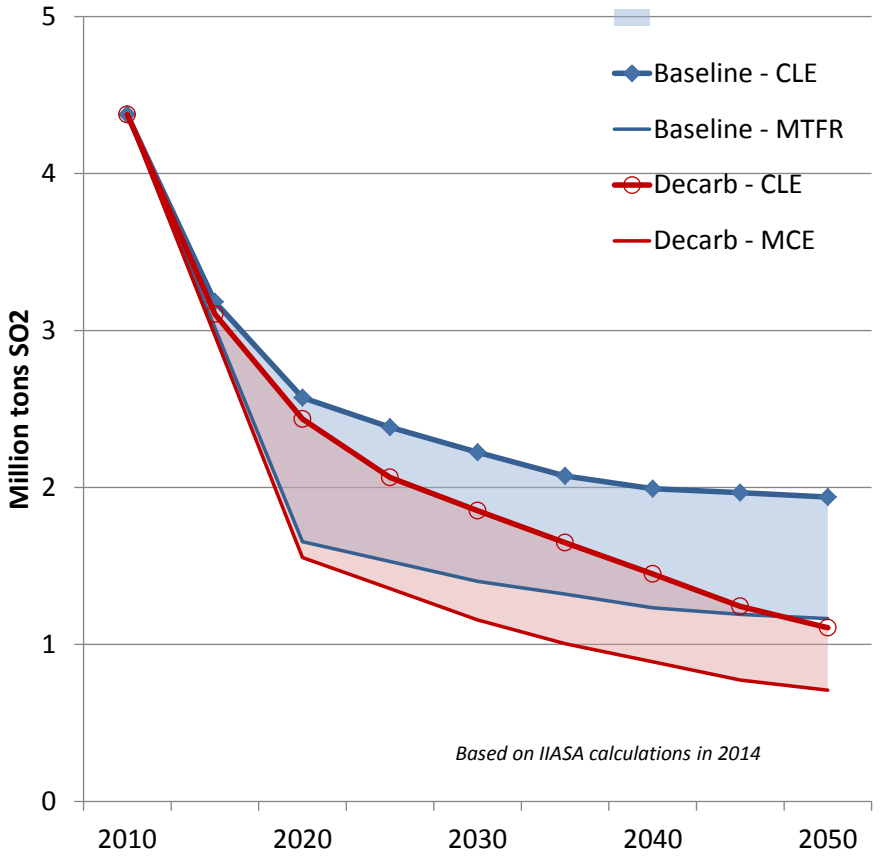
2010:
excess deposition
30 times lower

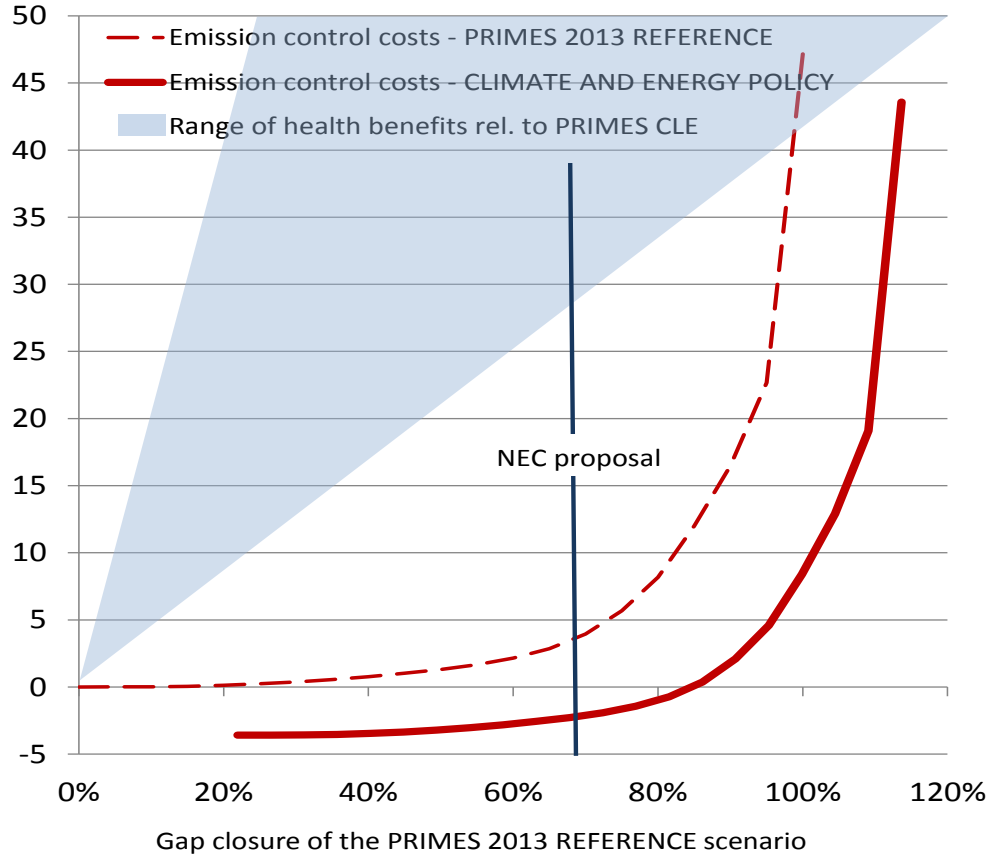
2010:
12 months life expectancy
~600,000 premature deaths/yr



5. There are synergies with other policy areas

i.e. Paris Agreement will contribute to cleaner air

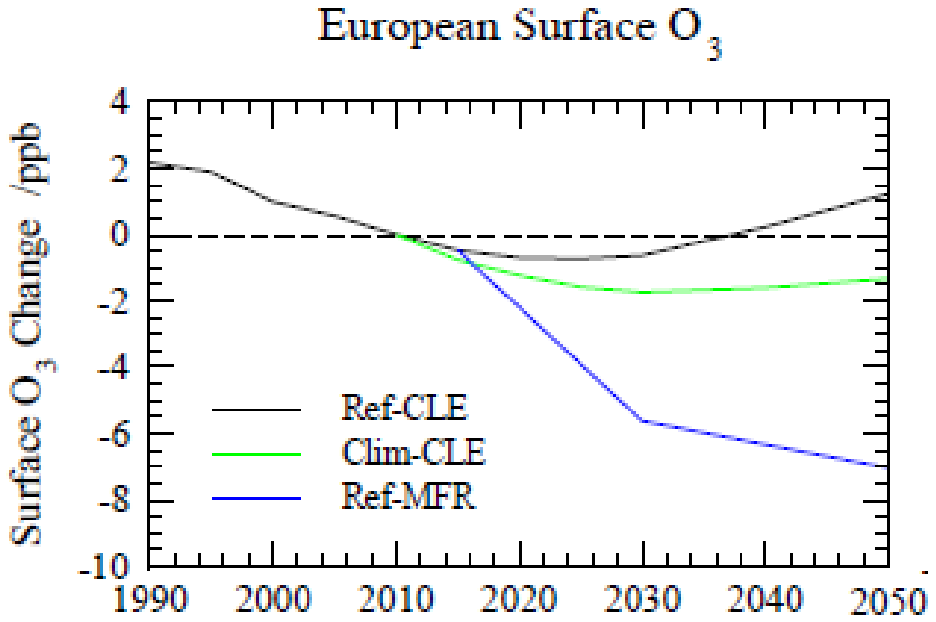




MTFR equals CLE with climate policy
Climate policy gives 15-20% higher reduction potential for SO2, NOx , VOC and PM2.5

Substantial lower contol costs:
Socio economic effects of most abatement measures are positive:
>50% health improvement without net costs

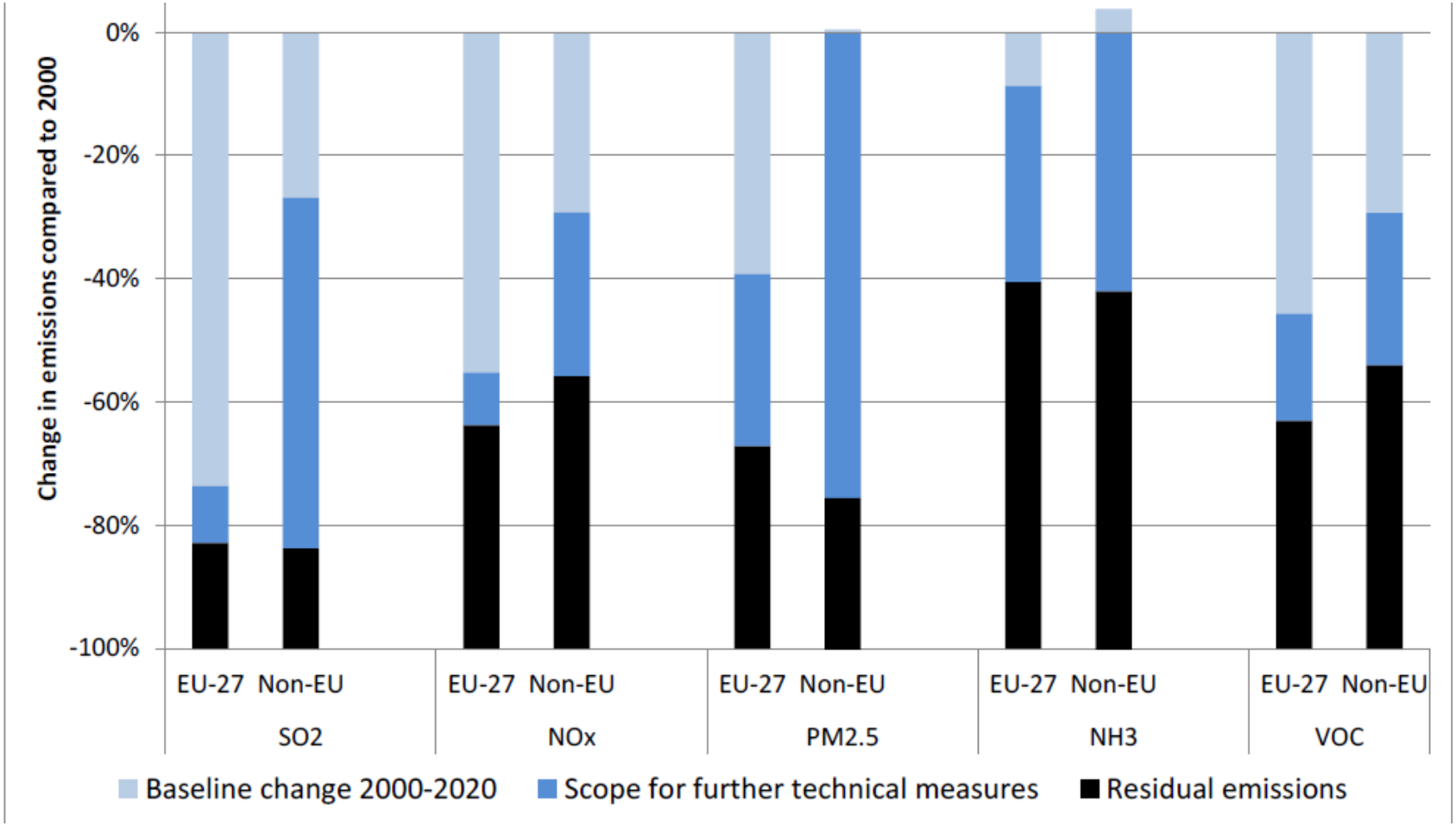
6. Ozone requires northern hemispheric cooperation that includes methane abatement



How to avoid exceedance of 35 ppb ozone levels in Europe?

Current summer average	~ 42 ppb (33-50)
MFR Europe	-3 ppb
MFR northern hemisphere	- 3 ppb
MFR methane	- 2 ppb

7. There is a large reduction potential in EECCA countries for SO_2, NO_x and PM2.5 from power plants & industries



CIAM report to 48th WGSR - 2011

What is hindering ratification by EECCA–countries?

- Adopting National emission reduction obligations is complicated due to uncertain emission data

- There are health benefits, but at a cost :
  - In EECCA countries average costs per life year gained are half the cost of a life year gained in the EU
  - but such costs as a % of GDP are 4 times higher than in the EU

- However adopting technical annexes would create a level-playing-field for industry within UNECE

Possible steps forward

1. Improve emission data for EECCA-countries
2. Harmonize monitoring of air pollution policy implementation and effects on health and ecosystems
3. Explore cost-effective northern hemispheric strategies
4. Explore synergies with energy, transport and public health at both local, national and regional scale
5. Explore synergies with agricultural policy, nature protection and public health
6. Explore synergies with sustainable development policies

7. Air pollution abatement offers concrete contributions to several SDGs