

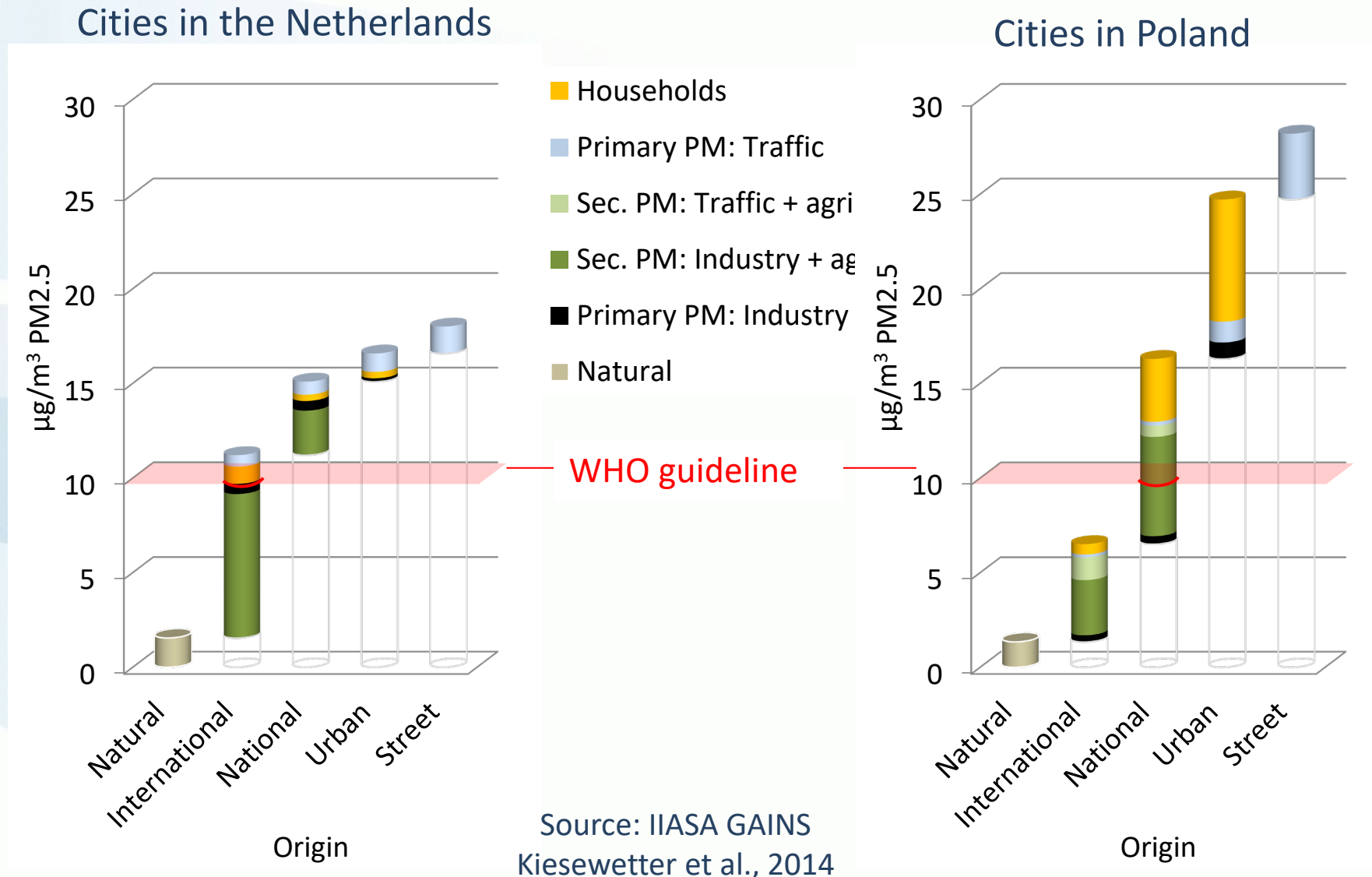
# Addressing the sources of pollution exposure

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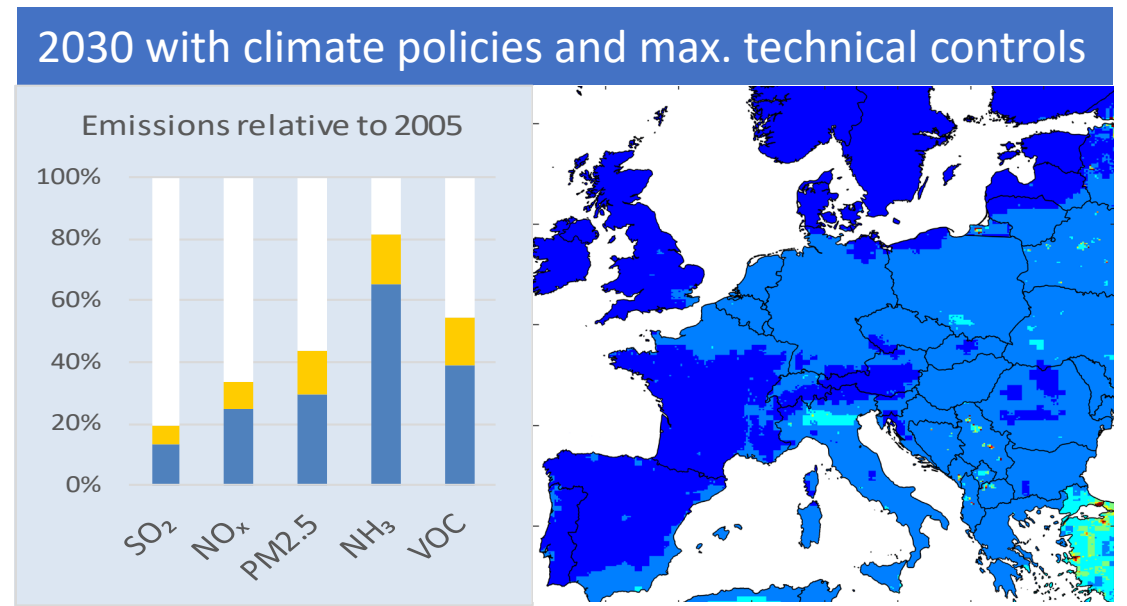
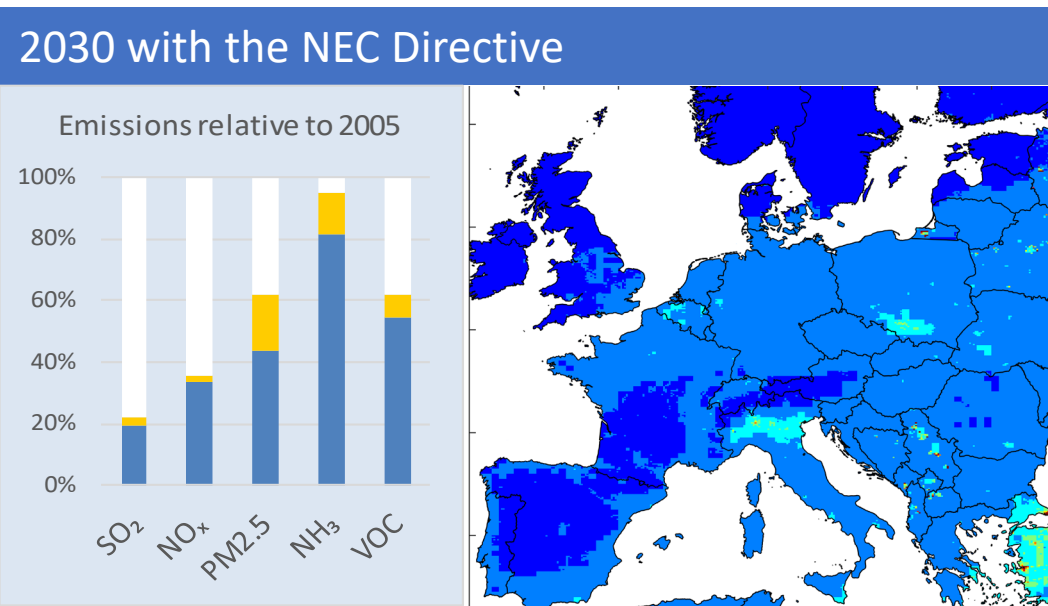
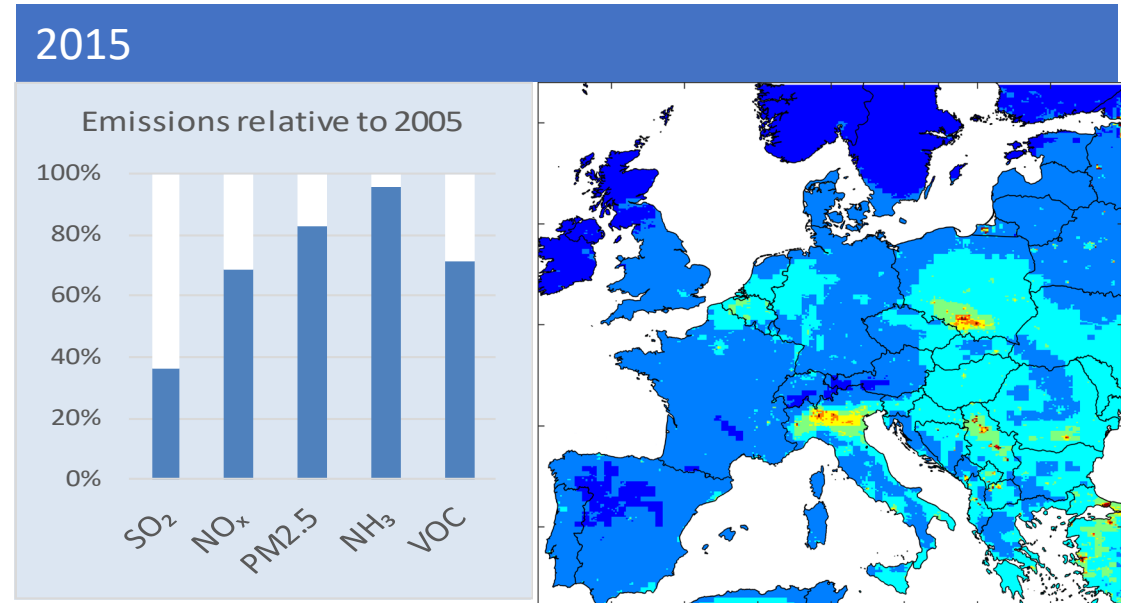
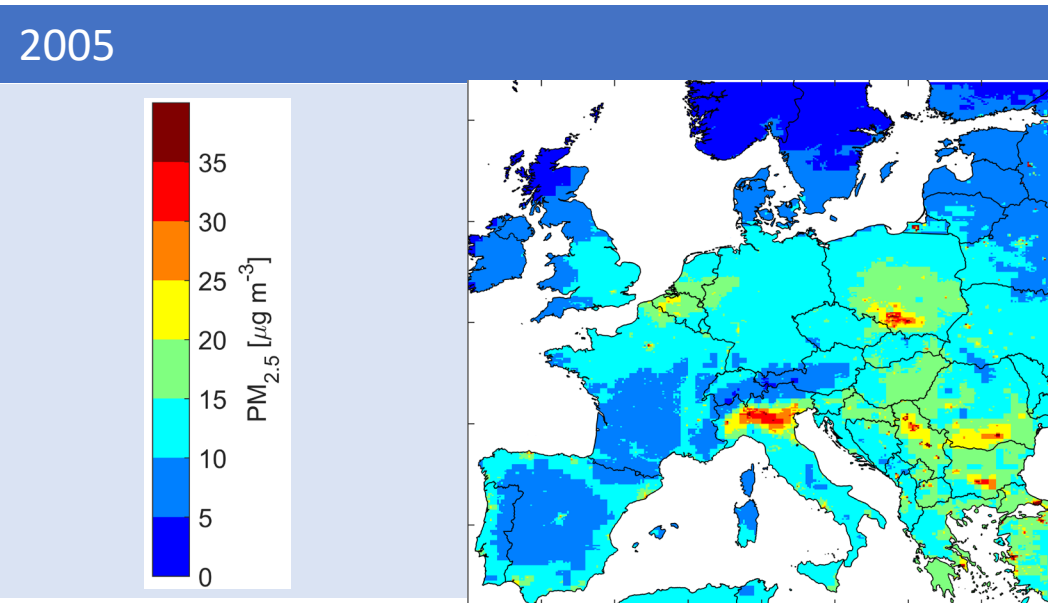
International Institute for Applied Systems Analysis (IIASA)

ERS/WHO/ISEE/HEI Workshop: Air pollution and Health:  
Recent Advances to Inform the European Green Deal  
Brussels, January 21-22, 2020

# PM2.5 exposure originates from many different sources – not only from within the same city, but from a large area



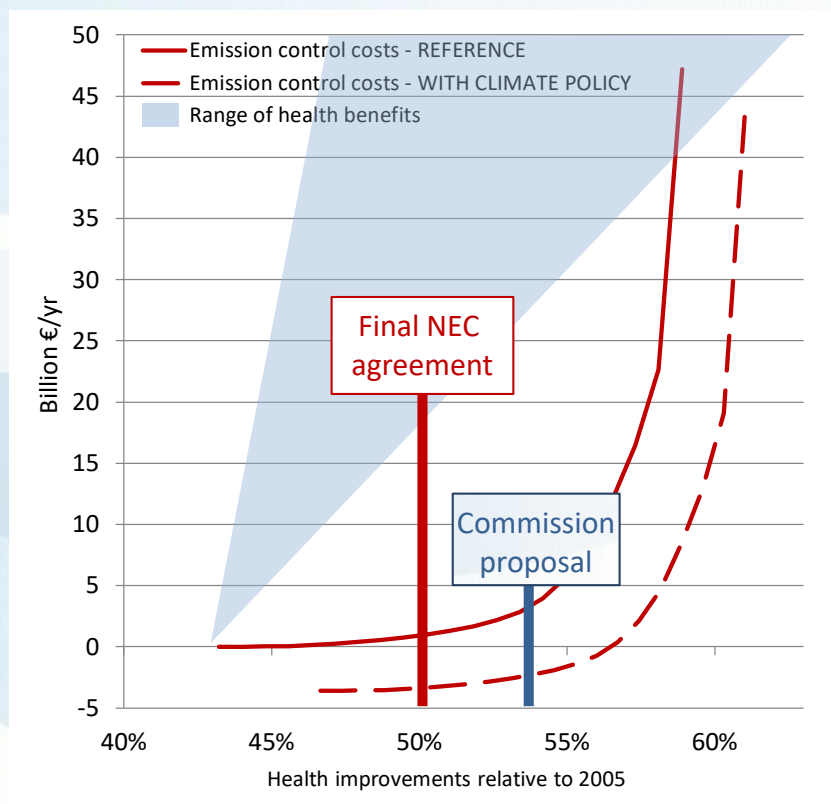
# Ambient concentrations of PM<sub>2.5</sub>: From 2005 to 2030



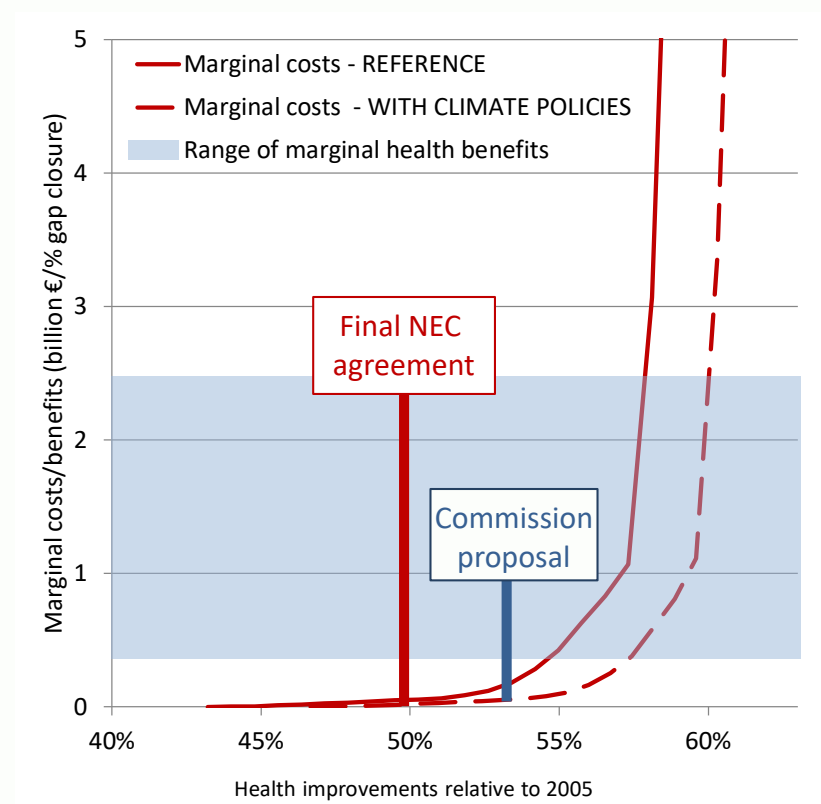
# EU policy instrument #1: National Emission Ceilings (NECs)

## The economically optimal ambition level for the 2013 NEC Directive

Costs and benefits of emission reductions

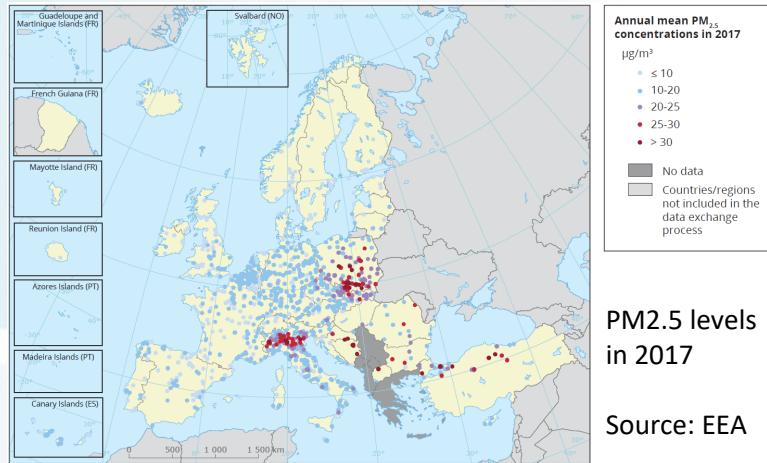


Marginal costs and benefits



- Information on health benefits is critical for establishing an economically rational ambition level
- Climate policies will deliver substantial co-benefits and shift the economically optimal level

## EU policy instrument #2: Air quality limit values (AQLV)



- There are large differences in current ambient PM<sub>2.5</sub> levels in the EU.
  - In the EU, (enforceable) AQLVs must be achievable everywhere.
    - In some areas (e.g., in Poland and Northern Italy), the lowest achievable PM<sub>2.5</sub> concentrations are well above the current levels in many other countries.
- 
- An EU-wide uniform air quality limit value for PM<sub>2.5</sub> that is achievable even at hot spots would
    - not require further measures in areas where concentrations are already lower,
    - forgive large public health benefits for pollutants for which no threshold can be identified,
    - require potentially very costly measures to resolve rare and untypical situations.
  - In 2004, the Clean Air For Europe (CAFE) program proposed - in addition to a PM<sub>2.5</sub> limit value – **national population exposure reduction targets** as an economically more efficient policy instrument towards clean air – but this was rejected by the European institutions.



## Four key messages

- A robust understanding of the health effects/benefits of clean air is essential for (cost-)effective air quality management responses.
- With the implementation of the NECD in 2030, large-scale achievement of the current WHO guideline value for PM<sub>2.5</sub> will come into reach in the EU.
- In heterogeneous regions, uniform air quality limit values are not the (economically) most efficient instrument for reducing public health impacts from PM<sub>2.5</sub>.
- Further emission reductions for the remaining dominating sources, i.e., agriculture and domestic heating, will be strongly connected with agricultural, climate and social policies. The health gains from clean air will deliver important local and near-term co-benefits for a 'green deal'.