Fitness Check

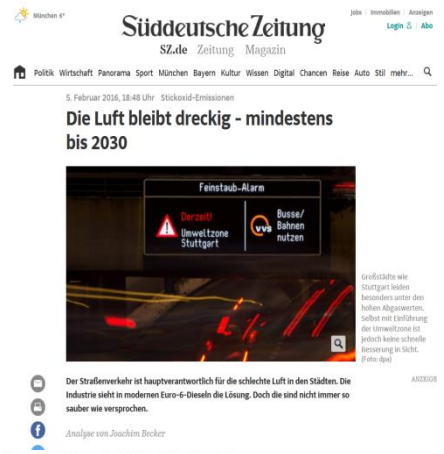
Ambient Air Quality Directives

FAIRMODE Plenary meeting. 12-13 February 2019

European Commission
Clean Air

Increased awareness of air quality urgencies


BBC NEWS
Science & Environment
Polluted air causes 5.5 million deaths a year new research says
By Jonathan Amos
BBC Science Correspondent, Washington DC
13 February 2016 | Science & Environment


Süddeutsche Zeitung
SZ.de Zeitung Magazin
5. Februar 2016, 18:48 Uhr Stickoxid-Emissionen
Die Luft bleibt dreckig - mindestens bis 2030
Feinstaub-Alarm
Derzeit! Umweltzone Stuttgart
Busse/Bahnen nutzen
Der Straßenverkehr ist hauptverantwortlich für die schlechte Luft in den Städten. Die Industrie sieht in modernen Euro-6-Dieseln die Lösung. Doch die sind nicht immer so sauber wie versprochen.
Analyse von Joachim Becker


EL PAÍS
ESPAÑA · Madrid
CONTAMINACIÓN »
La capital vulnera por sexto año seguido los límites de contaminación
• El informe anual de Ecologistas en Acción concluye que en 2015 los niveles de contaminación han sufrido un incremento notable
• Las alertas por contaminación se vuelven cotidianas
• "Intentamos pasar muy poco tiempo al aire libre"
ESTHER SÁNCHEZ | Madrid | 12 ENE 2016 - 21:27 CET
Archivado en: Manuela Carmena Contaminación atmosférica Madrid Comunidad de Madrid Contaminación Ayuntamientos Problemas ambientales Gobierno municipal


LE SOIR
Actu Sports Culture Économie Débats Blogs Images
La qualité de l'air belge est l'une des plus mauvaise d'Europe
Belga
Mis en ligne dimanche 31 janvier 2016, 23h25
Le problème principal est celui des particules fines. Les véhicules diesel sont pointés du doigt.
© Photo News
a Belgique est, juste derrière le Monténégro, le pays européen où la qualité


M Pollutions
Le Monde.fr
PLANÈTE POLLUTIONS
Nouveau pic de pollution à Paris
Le Monde | 20.01.2016 à 08h26 • Mis à jour le 20.01.2016 à 10h29
Le stationnement résidentiel est gratuit, mercredi 20 janvier à Paris, en raison d'un nouvel épisode de pollution atmosphérique. Airparif, l'association de


wyborcza.biz
BIZNES / LUDZIE / PIENIĄDZE
Wojna ze smogiem
Dominika Wantuch 01.02.2016 01:00
© Agencja Gazeta
Smog w Krakowie, styczeń 2014 (MICHAŁ ŁEPECKI)
Najgorszej jakości węgiel i przestarzałe piece idą w odstawkę. Po Krakowie uchwał antysmogowych chcą władze Wrocławia i Legnicy, a marszałek Śląska przepisami antysmogowymi zamierza objąć ponad 160 gmin.


theguardian
home › environment › pollution climate change wildlife energy UK world all
Pollution
London takes just one week to breach annual air pollution limits
Parts of the capital have already breached EU hourly limits for nitrogen dioxide pollution which causes thousands of premature deaths each year
Putney High Street in London breached annual limits for nitrogen dioxide early on 8 January. Photograph: Peter Macdiarmid/Getty Images
Adam Vaughan
@adamvaughan_uk
Friday 8 January 2016 10.58 GMT


De Morgen.
Cult. Muziek, film, tv, expo
Zine. Interview, foto, lifestyle
NIEUWS
Fijnstofconcentraties blijven hoog door gebrek aan wind
23-01-17, 14.19u - Bron: Belga
LEES LATER
©Photo News
Ook maandag en de volgende dagen blijven de meteorologische omstandigheden van die aard dat de fijnstofconcentraties hoog

Source(s): Various online and print media

Why is air pollution in Europe a problem?

Europe's **air quality is improving**; between 2000 and 2016 emissions of NH_3 decreased by 9%, and of SO_2 emission even by 76% … **yet still** there are

Health impacts:

More than 400.000 premature deaths each year

17% of all lung cancer deaths are due to air pollution

Citizens exposed to persistent exceedances (e.g. $PM_{2.5}$)

Assessed against EU limit values *Assessed against WHO Guidelines*

Economic impacts:

More than € 24 billion per year in 'direct costs';

plus € 330 to € 940 billion per year in 'indirect costs'

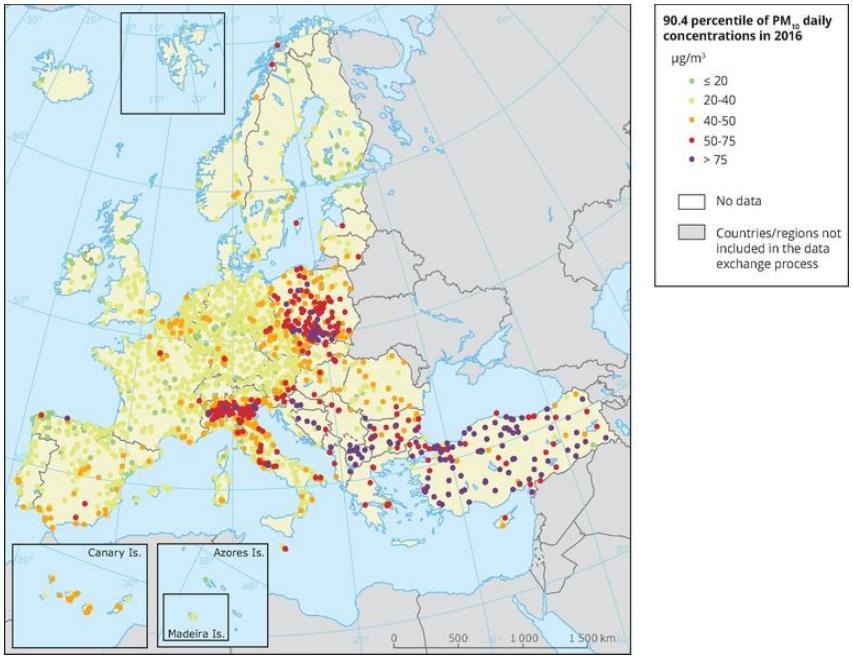
Environmental impacts:

Eutrophication limits exceeded in 72% of ecosystem area in the EU, and in 78% of Natura2000 area

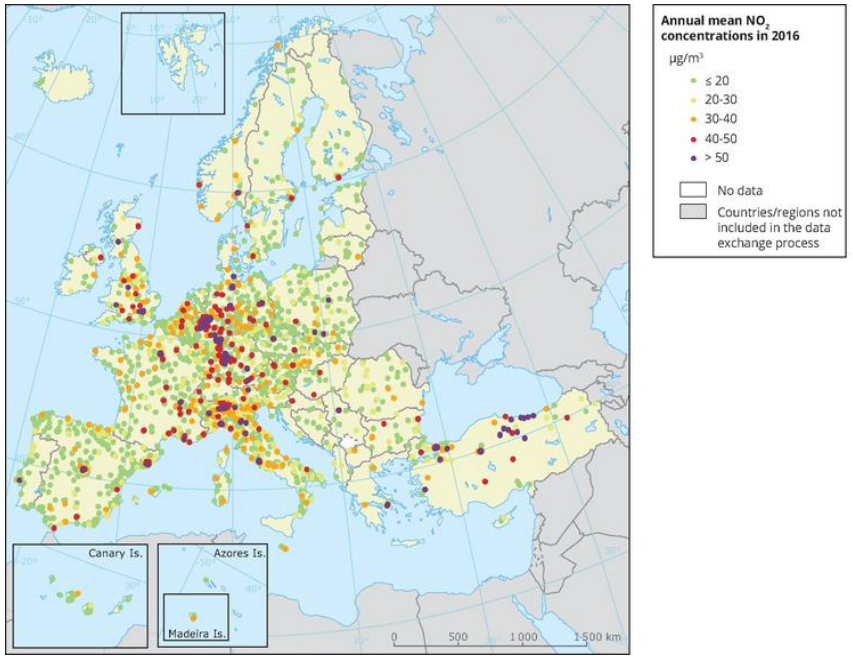
Source(s): EEA (2018), WHO (2017)

Where is air pollution in Europe a problem?

PM_{10} exceedances are often linked to fuel combustion (i.e. heating, transport)



NO2 exceedances are often linked to traffic, in more than 130 cities in EU.



Source(s): EEA Air Quality in Europe (2018)

Who and what causes air pollution in Europe?

Air pollution has multiple sources …

$PM_{2.5}$: Households (56%), Energy & Industry (22%); Transport (13%),…

NO_x: Transport (48%), Energy (17%), Industry (14%), Households (14%), …

SO_x: Energy (51%), Industry (29%), Households (17%), Transport (3%), …

NH_3: Agriculture (92%), …

(see backup slides for case studies)

… and originates across all scales

- Transboundary pollution
- National level background
- City level sources
- Road-side peaks

This combination requires EU Clean Air Policy to address all sectors & all scales

Who and what causes air pollution in Europe?

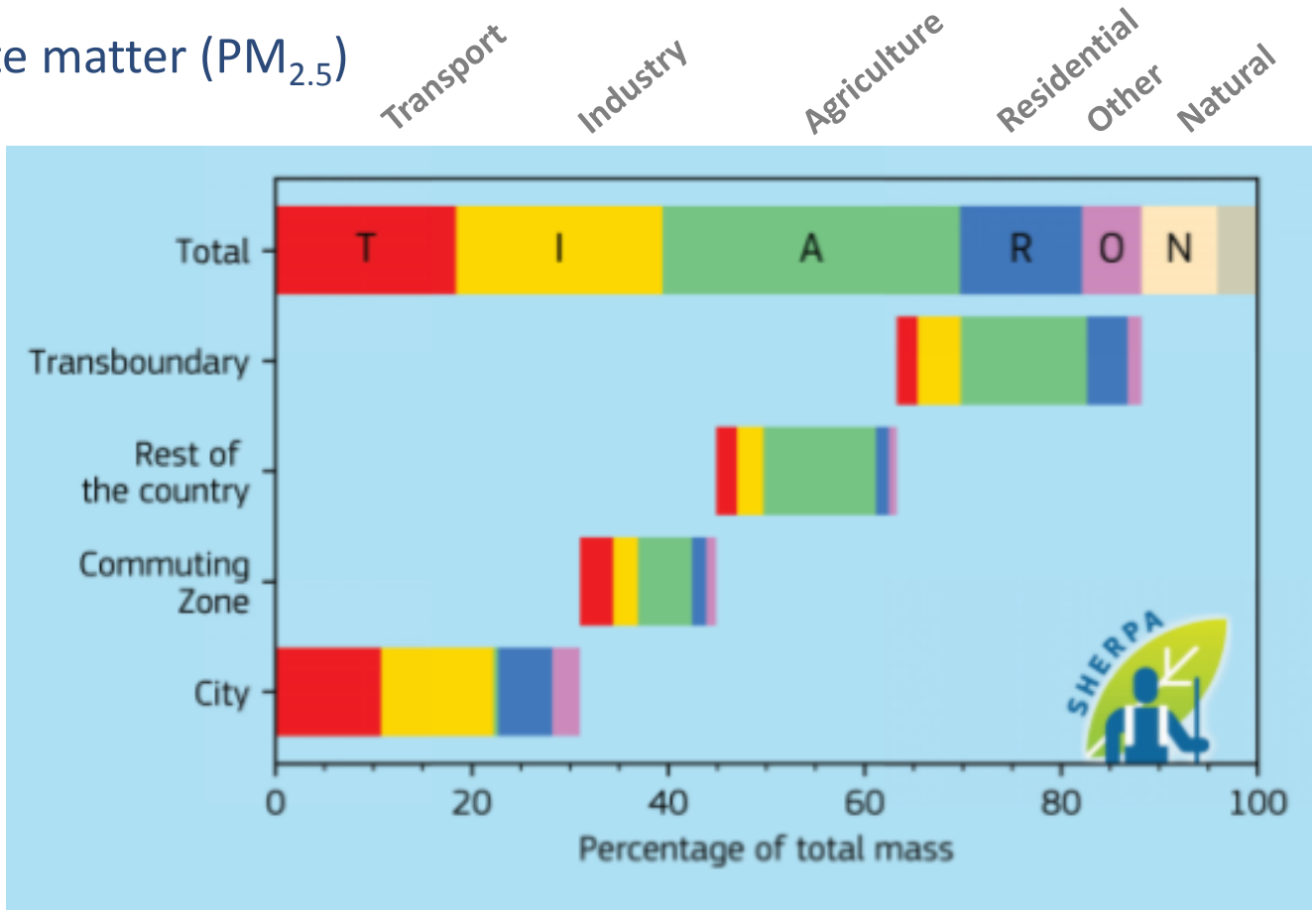
Sources of particulate matter ($PM_{2.5}$)

Case Study
Berlin (Germany)

EU limit value:
25 µg/m³

Measured in 2017:
17 µg/m³

WHO guideline:
10 µg/m³



Source(s): JRC Urban Atlas of PM2.5 (2017)

Who and what causes air pollution in Europe?

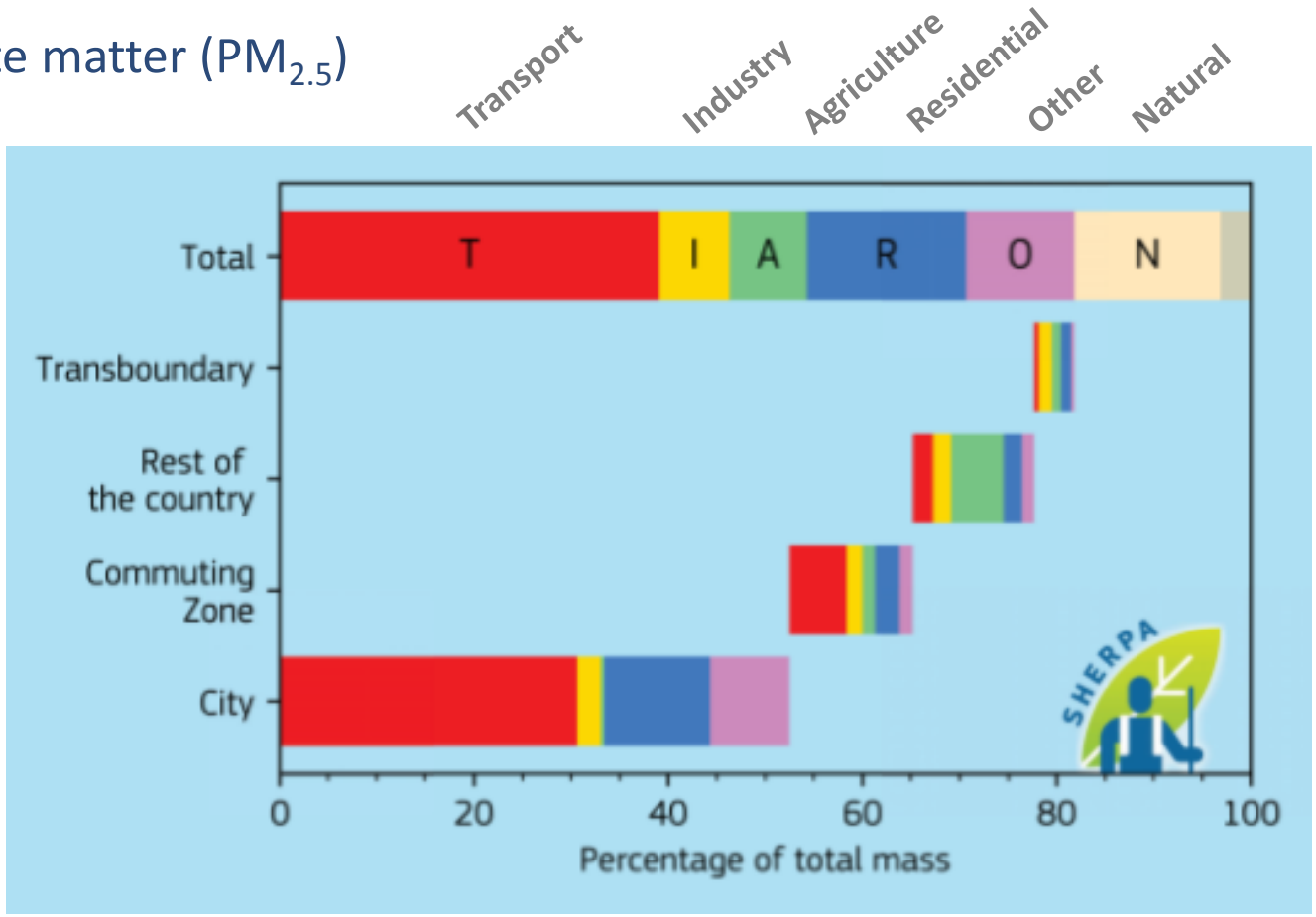
Sources of particulate matter ($PM_{2.5}$)

Case Study
Madrid (Spain)

EU limit value:
25 µg/m³

Measured in 2017:
12 µg/m³

WHO guideline:
10 µg/m³



Source(s): JRC Urban Atlas of PM2.5 (2017)

Who and what causes air pollution in Europe?

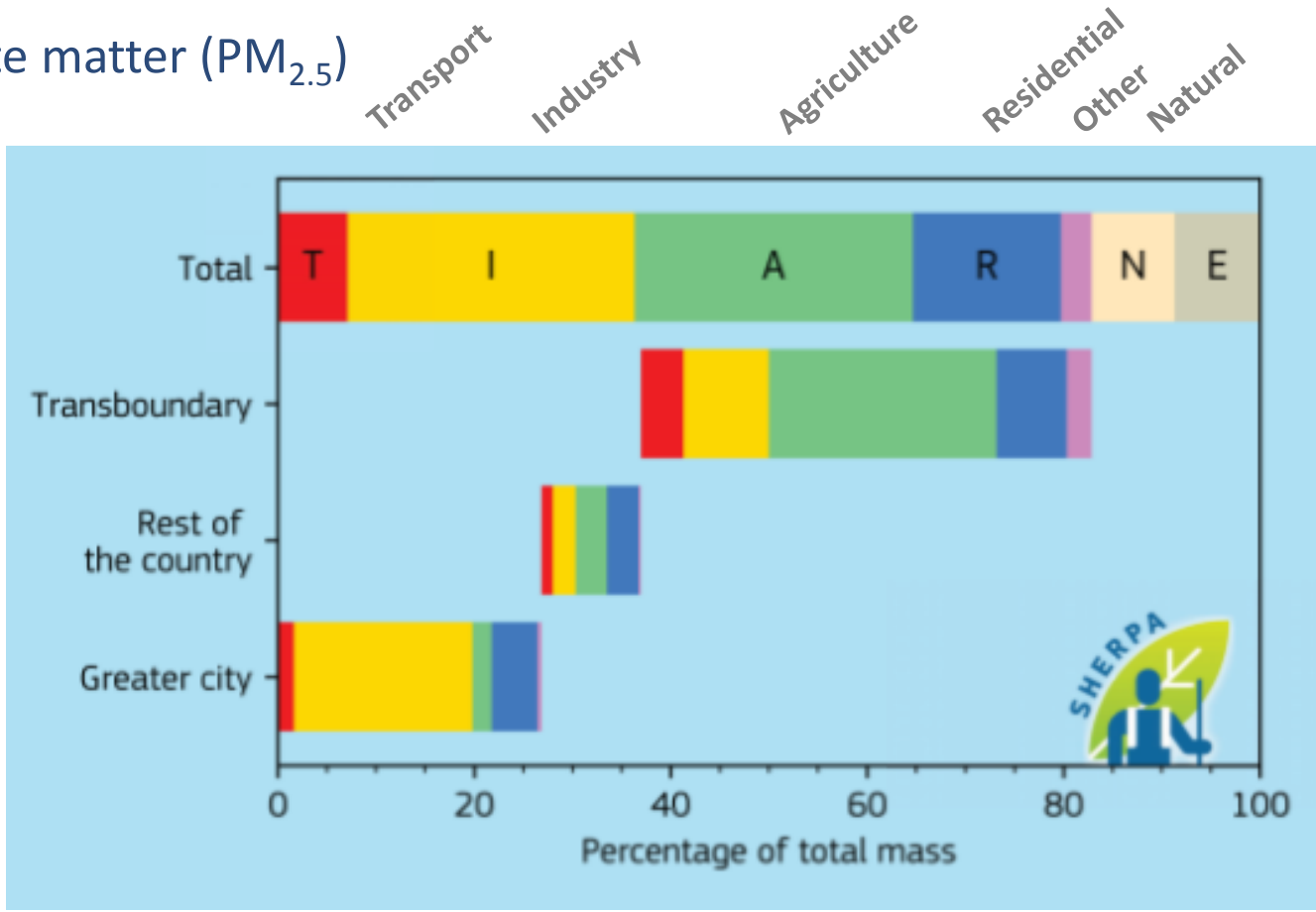
Sources of particulate matter ($PM_{2.5}$)

Case Study
Kosice (Slovakia)

EU limit value:
25 µg/m³

Measured in 2017:
23 µg/m³

WHO guideline:
10 µg/m³



Source(s): JRC Urban Atlas of PM2.5 (2017)

Who and what causes air pollution in Europe?

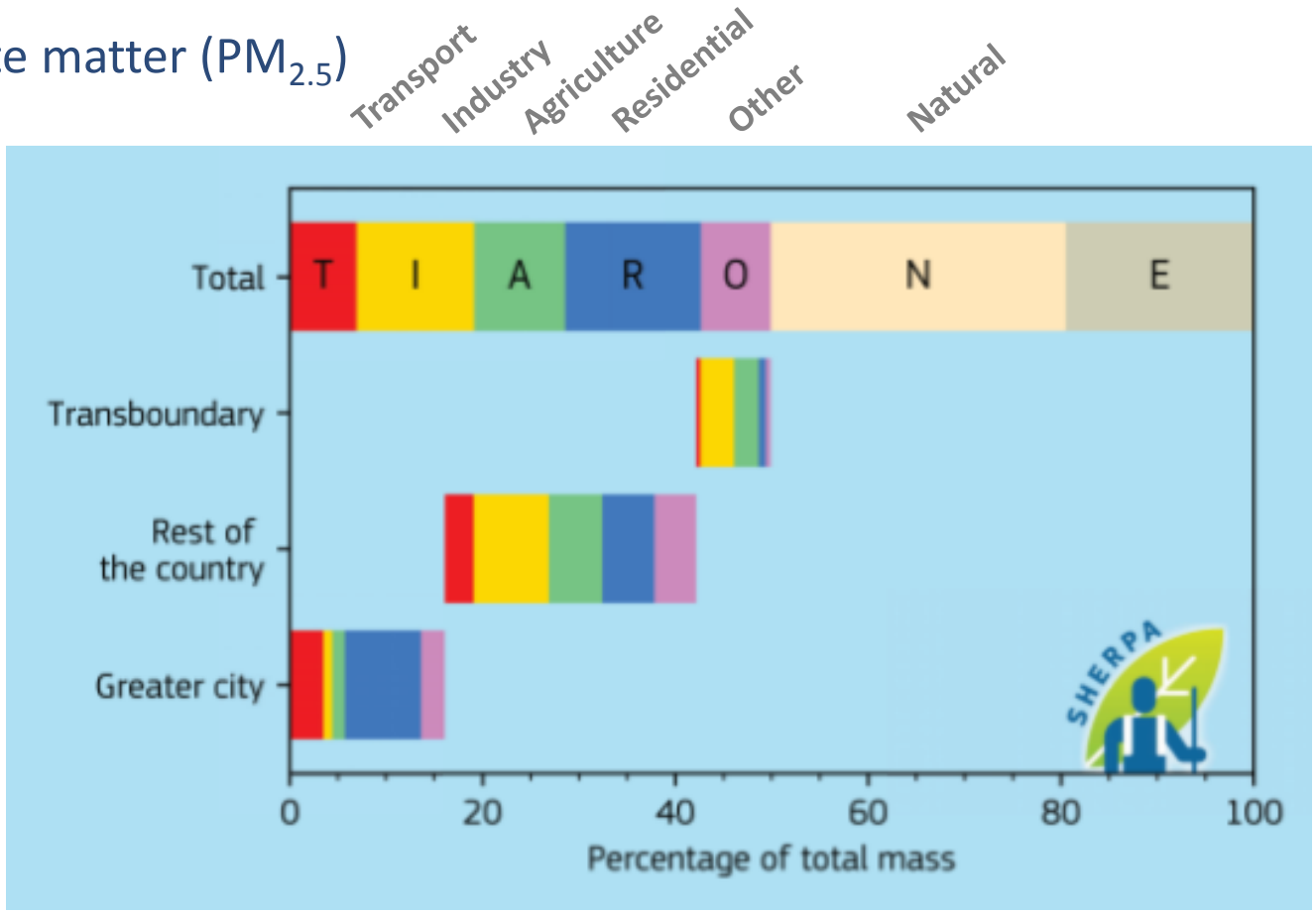
Sources of particulate matter ($PM_{2.5}$)

Case Study
Catania (Italy)

EU limit value:
25 µg/m³

Measured in 2017:
13 µg/m³

WHO guideline:
10 µg/m³



Source(s): JRC Urban Atlas of PM2.5 (2017)

EU Clean Air Policy Framework

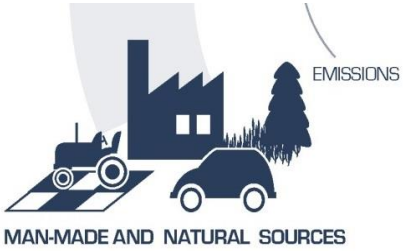
SETTING OBJECTIVES FOR GOOD AIR QUALITY

Ambient Air Quality Directives

Maximum concentrations of air polluting substances (PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, O_3 + 6 more)

Directives
- 2004/107/EC
- 2008/50/EC

REDUCING EMISSIONS OF POLLUTANTS



National Emission Ceilings Directive

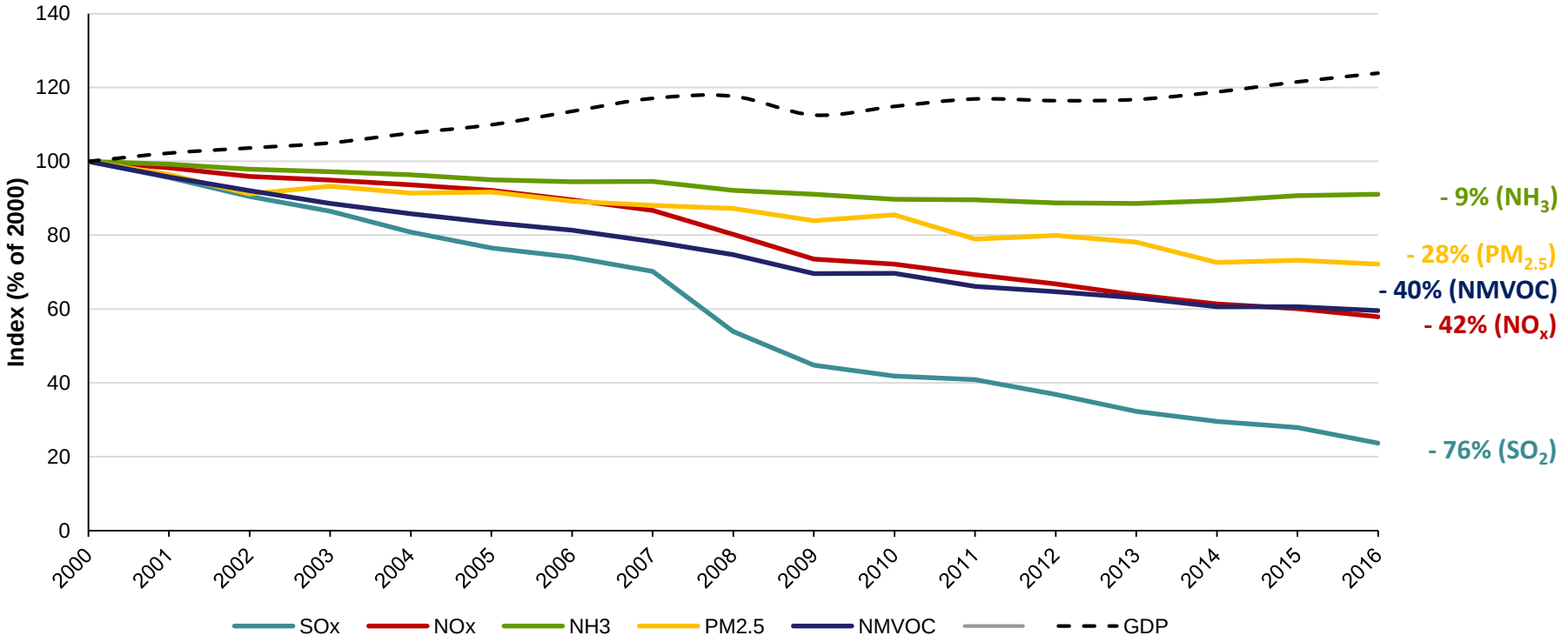
National emission totals (SO_2, NO_x, VOC, $PM_{2.5}$, NH_3)

Source-specific emission standards

- IED Directive
- MCP Directive
- Eco-design Directive
- Energy efficiency
- Euro and fuel standards

EU National Emission Ceilings Directive

Development of EU-28 emissions, 2000-2016 (% of 2000 levels)



Source(s): EEA Air Quality in Europe (2018)

AAQDs … continued compliance gaps

Compliance gap persists – see COM (2018) 330 'Cleaner Air for All'

Regarding **NO2**: 17 Member States with exceedances in 2017 (more than 130 cities); 14 Member States are facing infringement actions.

Regarding **PM10**: 15 Member States with exceedances in 2017; 15 Member States are facing infringement actions; two cases have been decided by the Court.

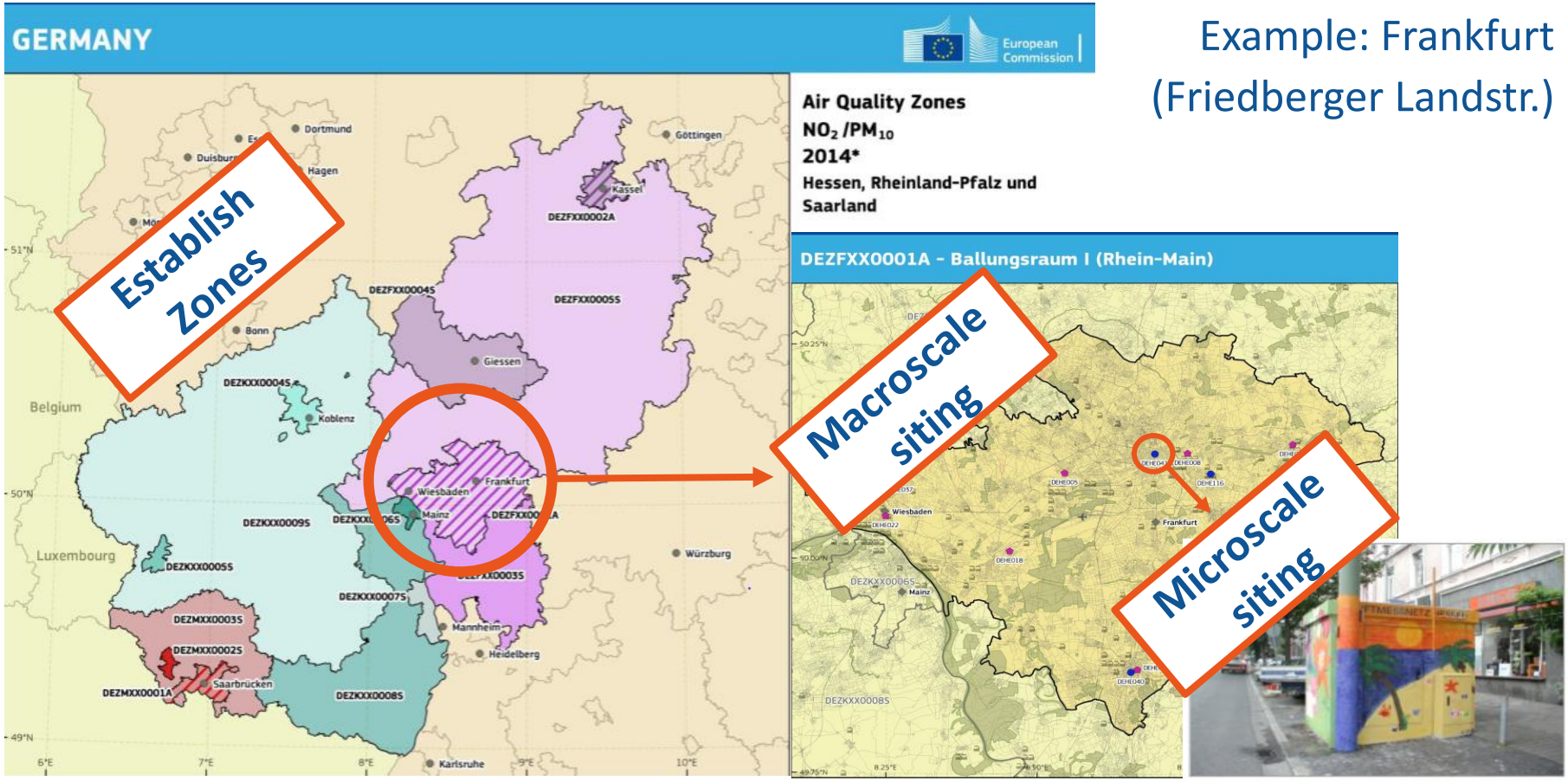
Regarding **SO2**: 2 Member States with exceedances in 2017; 1 infringement ongoing.

In addition, 2 infringement cases related to monitoring shortcomings.

Source(s): AQ Portal, Clean Air Programme

Directives
- 2004/107/EC
- 2008/50/EC

Key features of the AAQDs (1):
Define common methods to monitor air quality



Example: Frankfurt (Friedberger Landstr.)

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Directives
- 2004/107/EC
- 2008/50/EC

Key features of the AAQDs (2):
Establish air quality standards to prevent harm

Pollutants	WHO Guidelines	EU Standards	EU Exceptions	Selected Others
PM_{10} (annual)	**20 µg/m³**	**40 µg/m³**	-	**CH:20; NO:25 US: 50; CN: 40/70**
PM_{10} (daily)	**50 µg/m³**	**50 µg/m³**	**(35d a year)**	**CH: 50 (3d); NO: 50 (30d); AUS: 50 (5d); US: 150 (1d)**
$PM_{2.5}$ (annual)	10 µg/m³	25 µg/m³	-	AUS: 8; CH: 10; CAN: 10 US: 12; NO: 15; JP: 15
$PM_{2.5}$ (daily)	25 µg/m³	-	-	AUS: 25; CAN: 28; US: 35 (6d)
NO_2 (annual)	**40 µg/m³**	**40 µg/m³**	-	**CH: 30; CAN: 32; CN:40; AUS: 57; US: 100 (SE:20)**
NO_2 (hourly)	**200 µg/m³**	**200 µg/m³**	**(18d a year)**	**CAN: 115; US: 190 (2%); CN:200; AUS: 230 (1d)**
SO_2 (daily)	20 µg/m³	125 µg/m³	3 days a year	AUS: 80; CH:100 (1d); CN: 50/150
SO_2 (10m/hourly)	500 µg/m³	350 µg/m³	24 hours a year	US: 200 (1%); NZ: 350 (9h) AUS: 530 (1d)
O_3 (8-hour mean)	**100 µg/m³**	**(TV) 120 µg/m³**	**(75d in 3 years)**	UK: 100 (10d); CAN: 126; US: 140
Benzo(a)Pyrene	0.12 ng/m³	(TV) 1 ng/m³	-	NO: 0.1; SE: 0.1; CN: 1
CO (8-hour mean)	**10 mg/m³**	**10 mg/m³**	-	**CH: 8 (1d); US: 10; NZ: 10; CN: 10**

Directives
- 2004/107/EC
- 2008/50/EC

Key features of the AAQDs (3): **Ensure air quality information is public**

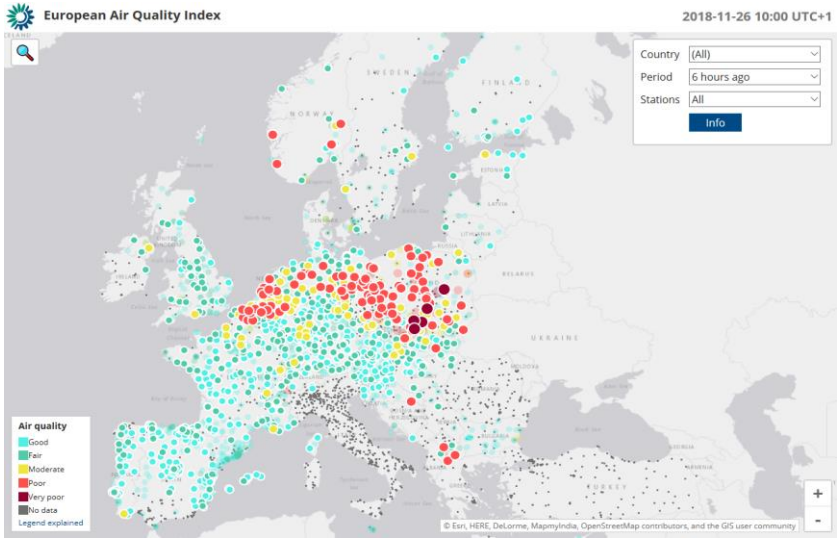
Member States make available information via an air quality data repository (http://www.eionet.europa.eu/aqportal), and via national data portals

E.g. Annual Air Quality Reports

(published by European Environment Agency)

E.g. Air Quality Index

(http://airindex.eea.europa.eu)



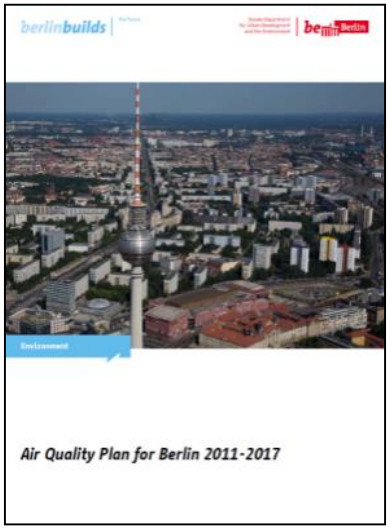
European Commission

Directives
- 2004/107/EC
- 2008/50/EC

Key features of the AAQDs (4): **Mandate action to improve air quality**

The Ambient Air Quality Directive requires Member States to have air quality plans to keep exceedance as short as possible:

- General information and details on measuring stations
- Nature and assessment of pollution (incl. trends)
- Techniques used for air quality assessments
- Origin of pollution (incl. source apportionment)
- Details of measures and estimate of improvement of air quality planned,
- Expected time required to achieve standards



AAQDs … Effective Measures

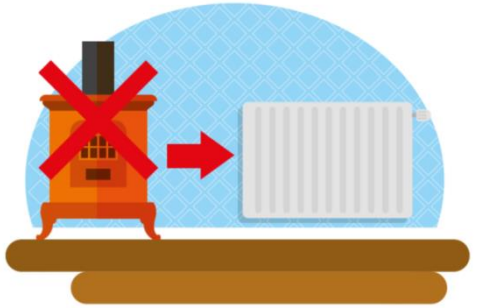
Boosting **energy efficiency** by refurbishing buildings

Examples for PM_{10}

Implementing **cleaner industrial processes**

Reliable, affordable and clean **public transport** such as electric buses and trams and new Euro VI

City or district heating, using heat from existing industry or renewable energy sources



Promoting substitution of old, dirty **stoves and boilers** with clean models, and banning **dirty fuels for household heating/cooking**

AAQDs … Effective Measures

Reliable, affordable and clean **public transport** such as electric buses and trams and new Euro VI

Examples for NO_2

Extensive and safe **cycling networks**, abundant bike-parking facilities with easy access to public transport

Traffic restrictions such as low-emission zones, reduced speed limits and congestion charges

Implementing **cleaner industrial processes**

Cleaner transport such as electric cars or buses and **retrofitted dirty vehicles and ships**

Fitness Check – Ambient Air Quality Directives

Scope: Evidence-based analysis of whether EU actions are fit for purpose, and identify regulatory burdens, overlaps, gaps, inconsistencies

Evidence: Literature review: scientific peer-reviewed as well as other reports
Air quality data as reported over the period 2008 to 2018 to EEA
General stakeholder consultation (incl. Online PC and 2 workshops)
Targeted stakeholder consultation (incl. questionnaires and interviews)
Seven focus case studies (in BG, DE, ES, IE, IT, SE, SK)
Desk review of EU and national legislation, as relevant

Purpose: Retrospective exercise; looking at period 2008 to 2018

Evaluation criteria: Relevance & EU Value Added

Initial findings (i.e. based on support study):

- Air quality is still a major health and environmental concern for EU citizens.
- Current standards are not as strict as latest scientific evidence would suggest they should be to protect human health (i.e. prevention and precaution).
- AAQDs have stimulated more / additional MS action to improve air quality; as they explicitly mandate when measures need to be taken.
- AAQDs have streamlined monitoring and reporting, and improved data collection across the EU.
- AAQDs have enabled civil society to challenge MS where air quality is poor (but Court of Auditors notes gap of explicit reference to access to justice).

Source(s): Background document for 2nd stakeholder workshop

Evaluation criteria: Effectiveness

Initial findings (i.e. based on support study):

- Air quality has generally improved in the assessment period in all MS.
- Most MS have reported exceedances for at least one pollutant, even in 2017; but number an extent of exceedances has decreased 2008 to 2017.
- Number of sampling points in line with the AAQ Directives in most air quality zones; but use of supplementary air quality models varies from MS to MS.
- Several stakeholders noted that the Directives are not prescriptive enough, and allow for degree of interpretation (e.g. for monitoring micro-siting).
- Multi-scale sources of pollution result in governance challenge, and instances of incoherent implementation of measures (e.g. city action vs national action)

Source(s): Background document for 2nd stakeholder workshop

Evaluation criteria: Efficiency

Initial findings (i.e. based on support study):

- Data for air quality monitoring indicate a total annual cost across the EU in the order of €0.2 to € 1/person/year (only partly attributable to AAQDs).
- A wide range of measures for air quality improvement have been adopted, with justifiable differences in the distribution of costs by country / by sector.
- Earlier estimates (2013) pointed to costs of air pollution in range of €330 to 940 bn (note: indirect costs) – and €24 bn as direct costs – per year.
- For 2008-2016: costs of poor implementation (failure to meet the limit values) are estimated at €100 to 500 bn.
- Health benefits of the AAQDs in the EU indicatively estimated €25 to 76 bn.

Source(s): Background document for 2nd stakeholder workshop

Evaluation criteria: Coherence

Initial findings (i.e. based on support study):

- AAQDs are largely internally coherent (isolated examples where they are not).
- Strong coherence with other EU Clean Air legislation, including the NEC Directive, the IED Directive, the MCP Directive, and the Sulphur Directive)
- Overall coherent at the level of objective setting with sectoral legislation, including agriculture, transport, and energy and climate.
- Some incoherence in implementation of sectoral policies identified, i.e. Euro standards real world emissions (diesel), cross-compliance, and bioenergy.
- EU Energy Taxation Directive allows MS to tax diesel fuel at a lower rate.

Source(s): Background document for 2nd stakeholder workshop

Thank you!

Contact: vicente.franco@ec.europa.eu

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European Commission
Clean Air