



DG Environment insights on emissions and air quality

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EU Clean Air Policy – The policy framework



Air Quality Directives

Maximum concentrations of air polluting substances

CONCENTRATIONS

EMISSIONS



National Emission Ceilings Directive

National emission totals
(SO₂, NO_x, VOC, PM_{2.5}, NH₃)

Source-specific emission standards

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

- Fitness check of the Ambient Air Quality Directives
- Post-Euro 6/VI emission standards development
- DG Environment and ERMES

EU air quality standards to protect human health

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



Communication
COM(2018)330

Clean air for all ... continued enforcement action

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 specifically to monitoring and reporting shortcomings, plus other cases that also address monitoring.



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
>>> started in mid-2017 - to be finalized by end of 2019 <<<

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

Criteria: Relevance, Coherence, Effectiveness, Efficiency, EU Value Added



NOT validated by the
European Commission

Fitness check initial findings (support study)

Relevance & EU Added Value

- 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 streamlined monitoring and reporting improved data collection and stimulated more / additional MS action to improve air quality;

Coherence

- AAQDs are largely internally coherent (isolated examples where not); overall coherence with other EU Clean Air legislation
- Some incoherence in implementation of sectoral policies identified, i.e. Euro standards real world emissions (diesel), cross-compliance, and bioenergy.



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Fitness check initial findings (support study)

Effectiveness

- Air quality has generally improved in the assessment period in all MS- but most MS have reported exceedances for at least one pollutant, even in 2017.
- Several stakeholders noted that the Directives are not prescriptive enough, and allow for degree of interpretation (e.g. for monitoring micro-siting).

Efficiency

- 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).
- 2008-2016: Health benefits of the AAQDs estimated €25 to 76 bn. But costs of poor implementation (> limit values) are estimated at €100 to 500 bn.



Some concluding reflections on Air Quality

COM(2018)330 emphasizes urgent need to improve air quality through **full implementation** of air quality standards – for now, compliance gaps remain.

Reducing air pollution effectively requires **close cooperation** between different societal actors and across governance levels (EU, national, regional, local).

The European Commission continues to **support implementation** by Member States – such as via Clean Air Dialogues, or via funding opportunities.

With the on-going Fitness Check we are seeking to understand what works well, and what could work better: **whether the Directives are fit for purpose.**



Stakeholder event on future emission standards



- Took place in Brussels on the 24th October 2018 with the participation of more than 120 experts
- Preceded by a meeting of academic experts

All presentations are available on the link:

http://ec.europa.eu/growth/content/stakeholder-event-preparing-future-european-emission-standards-light-and-heavy-duty-vehicles_en



Broad list of issues

- *In use performance monitoring for compliance and enforcement over the lifetime of the vehicle*
- *Pollutant emissions to be considered along with CO₂/GHG emissions*
- *Currently non-regulated emissions should also be considered*

In use performance monitoring

- *Emphasis on **continuous emission monitoring**, but care should be taken on privacy rules*
- *Link regulations with impacts: towards averages and (lifetime) totals, and reducing risks*
- *Substantial increase in the durability requirements, including Market Surveillance and In-Service Conformity requirements*
- *Closer links with On-Board Diagnostics and the developments therein. Regulatory emphasis and signaling for further exhaust emission sensor development.*
- *Modelling and cloud monitoring should also be accounted for improved accuracy and performance*



Non-regulated emissions

- *Sub 23 nm particles and total (i.e. solid and volatile) particles*
- *NH₃ – Ammonia (hazardous, PM precursor, significant contributor to the formation of Secondary Organic Aerosols)*
- *HNCO (isocyanic acid)*
- *NO₂ - Less direct NO₂ helpful to reduce exposure – Maybe sufficient to be reported for AQ modelling purposes*
- *N₂O – Nitrous oxide (High GHG potential, ozone depleting substance)*
- *CH₄ – Methane (High GHG potential)*
- *PAHs – polycyclic aromatic hydrocarbons and Aldehydes*
- *Brake, tire, and road wear emissions: particle sizes and composition.*

Pollutant emissions to be considered along with CO₂/GHG emissions

- *Help address the question: How much emission control needed and what expense on fuel consumption is acceptable?*
- *Air and climate pollutants should not be dealt separately*
- *No separate standards for different types of fuels and or engines*
- *Address non-CO₂ greenhouse gas emissions*
- *Energy consumption and CO₂ emissions in normal use, including lights, auxiliaries, winter tires, options, deterioration, etc.*

Additional topics

- *Fuel and technology neutral regulations and emission standards*
- *Intelligent geofencing*
- *Investigate if and how Remote Sensing can complement the existing regulatory arsenal*
- *Investigate if OBD is still necessary in the emissions regulation or it is only a duty of the OEM towards its clients*
- *Evaporation losses: to further investigate for fuel neutrality and running losses*

Further steps

- *Two big studies in 2019-2020 to address the issues identified*
- *Legislative process in Europe can be long. At least two years from the proposal to the final rule should be estimated.*
- *Lead time for the industry to adapt its products*

In the meantime RDE regulations brought a significant improvement in car emissions in Europe



ERMES future ...and DG Environment?

- *Cutting edge research for emission factor development that ERMES brings links very much with both the AQ and national emissions policy framework of DG Environment*
- *We can explore ways to strengthen the collaboration between ERMES and the Commission*
- *For this we are ready to listen for your feedback*



Thank you for your attention!

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