Cleaner air in our cities
debate on air quality package & NEC directive

European Parliament, Brussels - 28 January 2015
The Clean Air Policy Package
- an update -

28 January 2015

Marianne Wenning
Director
European Commission
DG ENV
Air pollution and quality is an urban challenge

Despite reductions in particulate matter (PM) emissions over the past decades, concentrations have not yet declined to safe levels. For the EU, PM$_{2.5}$ alone is estimated to be responsible for 400,000 premature deaths per year.

In urban areas:

3 out of 10 exposed to exceedances of the EU daily limit values for PM$_{2.5}$

9 out of 10 exposed to exceedances of the WHO guideline value for PM$_{2.5}$

Source: EEA, Air Quality in Europe (2014)
Monetised benefits and costs for 2030

External cost reductions (health only): €44 -140 bn/year

Direct cost savings (health only): €3 bn/year
- Higher productivity of the work force: €1850 m
- Lower health care costs: €650 m
- Higher crop yields due to lower ozone levels: €220 m
- Less damage to buildings: €120 m

Implementation costs: € 3.3 bn per year
- Around €1bn cheaper if 2030 climate and energy package is implemented
- Positive overall impact on GDP growth
- Positive overall impact on employment

= Costs 12-40 times lower than benefits
= Costs about equal to direct economic cost savings
What would be needed to move towards WHO values?

Example: Belgium

The challenge: background emissions at international level combine with urban and street level emissions.

To achieve compliance, we need to address all pollutants and all sectors: households, industry, transport and for PM$_{2.5}$ also agriculture.

Clean Air Policy Package, incl. NEC Directive proposal, aims to do this!

Based on: IIASA TSAP 12 Report (2014)
Need to see NEC Directive in its (policy) context

- National AQ monitoring and reporting
- Air Quality Standards Dir. 2008/50/EC
- Climate & Energy Policies, ...
- Local AQ plans and programmes
- National Air Pollution Reduction Plans
- National Air Pollution Emission Inventories [and projections]
- EU Emission Performance Standards (e.g. vehicles, industrial processes, non-road mobile machineries, ...)

European Commission
Projected emission reductions 2005 to 2030

(Re-)Calculated emission reduction according to the proposed NEC Directive.

Thank You

Further info:

http://ec.europa.eu/environment/air/clean_air_policy.htm

http://ec.europa.eu/environment/air/review_air_policy.htm
The Barcelona Area Air Quality Plan

EUROCITIES. Cleaner air in our cities
Brussels, January 28, 2015

Assumpta Farran i Poca
General Director for Environmental Quality
Autonomous Government of Catalonia
Improving the air we breathe: a challenge and an opportunity

Foto courtesy Alfons Puertas, observer of the Fabra Observatory
Basic data of the Barcelona Area
Affected area: 40 municipalities

Highly industrialized area
- 140 IED Activities (2010/75/EU) & 2,000 Significant sources Air Pollutant Activities

Densely populated
- 4,3 M inhab. in 725 km²
- 1,6 M inhab. in Barcelona city

Important logistic area
- Several Highways and access roads to BCN with 100,000 to 150,000 vehicles/day
- Port: Cruisers (1st Spain, 4th worldwide) & Freight Containers (5th Spain, 15th Europe)
- Airport: Passengers (2nd Spain, 9th Europe).
Main air quality problems

NO$_2$ Annual Mean & PM$_{10}$ Daily Mean Limit Value, O$_3$ objective threshold exceedances

2 types of situations:

1) Environmental Episodes:
   - Activation of punctual measures since 2011

2) Long term problems:
Environmental Episodes

Main Objective:

- Reducing emissions
- Generate social awareness to develop political action.

Existing Measures since 2011
- Speed limitation to 90 km/h on the access roads to BCN enabled with variable speed management.
- Industrial activities and power plants protocols activation (ciment, energy, steel, glass)

New Measures
- Specific Mobility Taxation:
  - 40% Reduction in public transport cost.
  - 25% Increase in toll cost.
- Targets for Barcelona port
Efficient driving = clean air
2 + passengers = less pollution
Correct maintenance = less emissions

For environmental reasons

Citizen awareness messages communication, controversy measure?
- Virtual showcase: “Do clean air” http://femalesmesnet.webnode.com/

- Social networks presence #qualitataire #actuem #airemesnet

- Mobile Applicative device “aire.cat”.

- Secure and Sustainable Mobility Week: “Clean air – Do it”

- Guide: 30 years of Air Pollution Control. Industrial emissions, air quality monitoring

- Informative Material: videos “do we have to wait for the rain?” educative material, leaflets, ...

- Communication campaigns about public transport and air quality
Mobility Measures

- Low emission cars: Environmental & High Occupancy toll discounts in several access to Barcelona city (30% + 40%)
- Low emissions cars: permit for C-58 High Occupancy Vehicles Lane.
  - GNC, GLP, Electric, 108 diesel, 120 unleaded (more than 4000 cars labeled)
- “Bicifeina” or “Bike at work service” Promotion.
- New Ecolabel category for green vehicle fleets (>4,500 vehicles).
- TMB bus fleet renewal (37% GNC; 40% SCRT; 12% Hybrids - including old Diesel retrofitted & old GN retrofitted into hybrids).
EU Normative

- Industrial Emissions Directive (IED)
  - 26% NOx Emissions % & 22% of PM10 emissions

- Alternative Fuels Infrastructure Directive

- National Emissions Ceiling Directive Proposal (NECD)

- Medium Combustion Plant Directive Proposal (MCPD)
Industrial Policies & Measures

- Environmental Control and Inspections according to IED
- Environmental Taxation: tax deductions for environmental improvements and specific taxes.
- New tax for industrial gases and particle matter
- BAT (Best Available Techniques) Application
- Voluntary Agreements
- Catalan Continuous Atmospheric Emissions Control Network (XEAC)
Port of Barcelona

16% NOx & 23% of PM10 Emissions in the Barcelona Area
11% of PM10 & 18% of PM2,5 immission levels in Barcelona city
Port of Barcelona
Main proposed Actions

1. LNG Promotion (ships, heavy duty vehicles).
2. Goods distribution by train promotion
3. Control of ship emissions

SO2 annual mean Evolution for Barcelona port since January 1, 2010
New 2014 Environmental Taxes

- Commercial aviation NOx emissions Tax.
- Industrial gases and particles emissions Tax.
  - to promote industrial environmental improvements or the application of compensatory measures.
- Private and commercial mobility Tax ??
Thanks for your attention

more info at:

www.airemes.net

afarran@gencat.cat
A VISION FOR AN ULTRA-LOW EMISSION CITY

Improving air quality and tackling climate change in London

Elliot Treharne
Air Quality Manager
January 2015
London in 6 facts

- Global competition for jobs and growth
- By 2030, London will have a population of 10m
  That’s nearly 2m extra people

The main transport impacts on health
- Physical Inactivity: £9.8bn
- Air Pollution: £10.6bn
- Road collisions: £8.7bn

Km of NO2 exceedence in 2015

GDP, £Bn
- Central London
- Kuwait
- New Zealand
- Qatar
- Czech
The Challenge - 2010

NO2 Annual Mean
Source: LAEI 2010

NO2 2010 Annual Mean
Solutions

- Congestion charge
- Low Emission Zone
- Buses
- Taxis
- Cycling
- Electric cars
Solutions

Air Quality Neutral

Local measures

Retrofit programmes

Mayor’s Air Quality Fund

Construction

Health and comms

AIR QUALITY IN WANDSWORTH: A GUIDE FOR PUBLIC HEALTH PROFESSIONALS
Huge progress by 2020 but still won’t meet EU legal limits

NO2 2020 Annual Mean
Air Quality Manifesto

• Mayor has already put in place an ambitious package of measures – but recognition more needs to be done

• This summer Mayor set out a roadmap to compliance by 2020 in his Air Quality Manifesto

• Centre piece of this is the ULEZ

• ULEZ delivers two-thirds of the emissions reduction needed but further action required at European and national level if we’re to give Londoners the air they deserve
Why an Ultra Low Emission Zone?

- Central London predicted to remain an air quality focus area beyond 2020
- Greatest amount of public exposure and highest emissions occurs in Central London
- Congestion Zone is established with embedded travel behaviour and enforcement
- An opportunity to promote and encourage use of ultra low emission vehicles by building on existing Ultra Low Emission Discount
ULEZ standards

Upgrade or switch to a compliant vehicle by 2020

Euro VI
(<6 years old in 2020)

Euro 6 (diesel)
(< 4-5 years old in 2020) or
Euro 4 (petrol)
(<13-14 years old in 2020)

Euro 3 (<13 years old in 2020)

Stay and pay a ULEZ charge

£100 daily charge

£12.50 daily charge

Adapt journey

A proportion of drivers will instead change route or destination, change mode or reduce the amount they travel.
Additional requirements for TfL services

TfL is working to reduce emissions from its buses, taxis and PHVs and to increase the number of zero emission capable vehicles. This will create demonstrator fleets in London, boost industry sales and lead the transition towards this technology.
Public information
Education, Behaviour Change and Awareness Campaigns
Cleaner Air Champions

- Trialled in Hackney, Redbridge and Havering; delivered with Sustrans
- Now rolling out to Islington and Croydon
- Champions from all walks of life to raise awareness, change behaviour and help tackle local emissions
- 20 champions directly engaged over 1,500 people
Integrating with public health

• Developed Joint Strategic Needs Assessments for every London borough

• Now trying to roll out directly in primary/secondary care.

• Workings with Barts NHS Trust to create Clean Air Zones at their hospitals
  • Physical interventions
  • Reducing emissions
  • Raising awareness amongst patient community (e.g. respiratory or cardiac clinics)
Conclusion

• The Mayor of London has already put in place an ambitious package of measures – and has proposed further measures including ULEZ

• But these only take London two-thirds of the way to compliance with NO2 limits

• More needs to be done at national and EU level to tackle remaining gap – this is where some of the most powerful policy levers are including fiscal incentives

• This is why NECD is so crucial to cities – it drives national action and tackles transboundary pollution
Cities cleaning up the air: How we struggle with air quality compliance and Why the (new) NECD is barely needed to succeed

Martin Lutz
Berlin
Senate Department for Urban Development and the Environment
Clean Air Policy in the EU

Controlling Emissions

Improving Air Quality

**Air Quality Directive**

- sets legally binding air quality standards for
  - Particulate Matter (PM10/2.5),
  - NO₂,
  - ..... 
- stipulates full compliance by certain deadlines, incl. possible time extensions
Air Quality standards

How & why cities struggle to meet them

- Exceeding the NO2 limit values:
  - 10% of urban population affected
  - 40% of all traffic-related AQ monitoring sites exceeded
  - Traffic (Diesel-vehicles) is the predominant source
  - Much higher NOx-emissions of Diesel cars in real (urban) traffic
    - Factor of 7 (!) for new Euro 6 passenger cars
  - More Diesel cars due to stimulating national fuel taxes
  - No clear downward trend despite LEZ, traffic management, etc

- Exceeding the PM10 limit values:
  - More than 20% of urban population affected
  - 30% of all urban background monitoring sites exceeded
    - Problems even in rural areas (7%)
  - 40-70% of PM10 stems from regional sources
    - 30 to 50% secondary aerosol formed from NH3, SO2, NOx and VOC
  - Significant large-scale, even transboundary component
  - Important local sectors are transport and residential heating

Local tool box insufficient to close the compliance gaps

Most data from EEA report No 5/2014
Clean Air Policy in the EU

Controlling Emissions

- Local (Urban) Air Quality Plans with measures, like
  - Low Emission Zone
  - green public procurement
  - LEZ, traffic planning/management
  - Cleaner residential heating
  - Construction site management
  - ...

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trigger for (further) measures

achieve Air Quality standards
What’s being done by cities
❖ a few examples from Berlin‘s tool box

Low Emission Zone
❖ PM10: ¼ of LEZ effect*
❖ NOx: ½ of LEZ effect*

Pushing clean vehicle technology,
❖ Diesel- and NOx- filter retrofit in buses
❖ Promotion of CNG, electric mobility
❖ Benefits for Euro 6, next stage of (U)LEZ ?

Optimising traffic flows,
City compatible speed limits (30 kmph) in main roads

Avoiding & shifting road traffic to cleaner traffic modes
❖ Public transport, cycling, pedestrian strategy

Public procurement
❖ e.g. Emission criteria (e.g. DPF-retrofit) for machinery used in public construction projects
❖ Last decade: 2 x more cyclists, -14% car traffic ~ LEZ effect

Not too bad, but still insufficient to close (NO2) compliance gap
Clean Air Policy in the EU

Controlling Emissions

National Emission Ceilings

National
- Air Pollution Control Programmes with (economic) measures, like
  - Energy & fuel taxes
  - Fiscal incentives for clean tech
  - Road pricing
  - Scrappage schemes...
  - Small combustion...

Local (Urban) Air Quality Plans with measures, like
  - Low Emission Zone
  - Green public procurement
  - Congestion charging
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  - Construction site management
  - ...

Improving Air Quality

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Achieving the AQ standards

Why’s a new ambitious NECD barely needed?

- **NECD relevant for urban AQ management**, because:
  - PM2.5 emission reduction helps decreasing PM10/2.5 pollution
  - NOx emission reduction helps decreasing local NO2 from traffic
  - NOx emission reduction helps decreasing background NO2
  - NOx emission reduction helps limiting secondary PM formation
  - NH3, SO2, VOC reduction helps limiting secondary PM formation
  - Need for urban AQ compliance was one of the drivers for calculating cost-efficient NECs

- **NECD pushes national governments to come up with national emission control strategies more geared to local AQ management**
  - **fuel tax**: removing subsidy for Diesel vehicles, extend for CNG (DE-gov)
  - **Road user charges**: levy per driven distance & incentive for clean vehicles
  - **Sustainable national transport** strategies & infrastructure investments
  - **Regulations for in-use small combustion**, funding of local green policies, etc ...

- **Coordination of NECD national programs with urban AQ management needs synchronisation with shorter local AQ planning time horizon**

- **We need mandatory 2025 NECs not falling below the ambition reflected in the Commission’s impact assessment of the NECD proposal (Option 6 C)**
Clean Air Policy in the EU

Controlling Emissions

National Emission Ceilings

Mobile sources
- EU- emission standards for vehicles, machinery

National Air Pollution Control Programmes with (economic) measures like
- Energy & fuel taxes
- Road pricing
- Fiscal incentives for clean techn
- Scrappage schemes..., Small combustion

Stationary sources
- Industrial emissions Directive; MCP-proposal

Local (Urban) Air Quality Plans with measures, like
- Low Emission Zone
- green public procurement
- Low traffic planning/management, Cleaner residential heating
- Construction site management
- ...

Product standards, like fuels, solvents in varnishes, Eco-Design ...

Improving Air Quality

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trigger for (further) measures
The Clean Air Package

résumé & emerging needs from a city view

■ Current (Euro 6) vehicle standard(s) (again) utterly fail(ed) to deliver expected emission reductions
  ➤ Needs to be updated ASAP & and based on ambitious urban RDE factors
  ➤ Devalues local measures promoting Euro 6 (ULEZ, procurement, taxation, …)
  ➤ Delays attainment of NO2 limit values in cities (Berlin: 3-5 years, 2023-25 ?)

■ Requires ambitious NECD even more urgently
  ➤ 2020 NECs too lax

■ Mandatory reduction commitments for 2025 needed to ensure support for AQ standard compliance
  ➤ “delivers additional cost-effective emission reduction” (Cion impact assessment*)

■ NECD is most cost-efficient tool to reduce PM background levels

■ NECD supports cities in their task to meet AQ limit values
  ➤ Via the requisite national reduction programmes
  ➤ Keep/strengthen the link to local AQ planning in the NECD proposal

*see page 70
Many thanks for listening!

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For more information on

❖ Berlin‘s LEZ see www.berlin.de/umweltzone (also in EN)
❖ Berlin‘s Air Quality Plan see www.berlin.de/luftreinhalteplan (soon also in EN)
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