Clean and Low Carbon Transport Roadmap

Delhi, September 4 and 5, 2018
Dorothee Saar, Head of Transport and Air Quality Department
Who we are

- NGO for environmental and consumer protection
- Founded in 1975
- About 90 staff members
- Politically independent
- Topics nature conservation, energy transitions, circular economy, transport and air quality
- Entitled to take legal action with regard to consumer rights and environment
Transport in Europe – A Challenge

- **CO2 emissions** from transport have to decline by 40-42% by 2030 – infact, emission are rising and now higher than in 1990
- Massive deviation in exhaust and consumption even at modern diesel passenger cars – responsible authorities do not react effectively
- About 50% of traffic based monitoring stations show exceedance of NO2 concentration limit values in Germany (similar in France, Italy, UK), leading to severe health damages
- Despite compliance with PM10 AQ-limits problem with ultrafine particles
- Increasing demand of space in urban regions conflicts with high space requirements of (parking) cars
Adressing particle emission from road transport
The bottom of the sign indicates which vehicle sticker(s) are allowed to enter. A sticker must be bought and displayed in the windscreen.

<table>
<thead>
<tr>
<th>Emissions class</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>Sticker</td>
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<td><img src="image2" alt="Image" /></td>
<td><img src="image3" alt="Image" /></td>
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<tr>
<td>Requirement for diesel vehicles</td>
<td>Euro 1 or worse</td>
<td>Euro2 or Euro1 + particulate filter</td>
<td>Euro3 or Euro2 + particulate filter</td>
<td>Euro4 or Euro3 + particulate filter</td>
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<td>Requirement for petrol vehicles</td>
<td>Without a catalytic converter</td>
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<td></td>
<td>Euro1 with catalytic converter or better</td>
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Reduction of BC due to LEZ

Veränderung der Ruß-Emissionen durch die UWZ
anhand der Flottenzusammensetzung an der Frankfurter Allee
mit Filternachrüstung

<table>
<thead>
<tr>
<th>Jahr</th>
<th>gesamte Flotte</th>
<th>Pkw</th>
<th>Lkw &lt; 3,5 t</th>
<th>Lkw &gt; 3,5 t</th>
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<td>183</td>
<td>163</td>
<td>64</td>
<td>38</td>
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</table>

-55% 32% 25%
Result:

- LEZ suitable instrument to address particle emission from road transport
- Additional regulation needed to address off road sources and wood burning
- Consider adequate size of LEZ to stimulate change and avoid pure shift
- Control of compliance is also important
- Peaks of BC show: fleet control in PTI needs to be reformed to include PN measurement
- Remote sensing tested in several cities – results will be interesting and might bear potential to address high polluters
Adressing NOx from road transport
• Alongside innerurban roads: 75 - 85% of NO2 from diesel engines

• Euro 6 Diesel emit in average 30x more NOx than gasoline cars

• NOx is a precursor for ozone and PM 2,5

• We can „use“ high NO2 numbers to take legal action (and thus address other pollutants as well)
How do we know?

About 100 vehicles tested on the road
Durchschnittliche reale Abgasemissionen von Diesel-Pkw verschiedener Schadstoffklassen im Vergleich zu deren Grenzwerten
Gemittelt über alle Straßenkategorien und Temperaturen

Euro 3
500
803

Euro 4
674
250

Euro 5
906
180

Euro 6a
597
80

Grenzwert in mg NOx/km
Realer Ausstoß in mg NOx/km

* vor Einführung von Real Driving Emissions, RDE

Quelle: HBEFA 3.3 (24.04.2017)
Reduction of NOx due to LEZ

Veränderung der NOx-Emissionen durch die UWZ
anhand der Flottenzusammensetzung an der Frankfurter Allee

<table>
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<tr>
<th>Year</th>
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-19%

0
10000
2000
4000
6000
8000
10000

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Reform Periodical Technical Inspection
• **Main concerns**
  - OBD does not consider all exhaust relevant failures (DPF, KAT)
  - Tailpipe measurements are much more reliable
  - Failures being detected both by OBD and TPM less than 1%
  - OBD finds out 25%, TPM finds out 75% of failures
  - OBD can be manipulated – you will find instructions and Apps in the internet

• **Limit values are too low**
  - Limit values for type approval have been reduced in a much higher rate than those for the testing
  - A car must massively exceed allowed values before failing the test

• **Old test equipment**
  - Existing opazimeter only „see“ bigger particles
  - Alternatives are available
  - Midterm solution: include PN measurement
Solution for PTI

- Revision
  - Limit values more ambitious bus tail pipe measurements postponed
  - PN measurement shall be included but devices not certified yet
  - Netherlands start campaign on PN measurement for diesel, gasoline DI still missing
  - Failure of NOx-catalyst not detected but PTI inspection needs test with load…

- Result: A better PTI could improve control for the existing fleet and help to
Technology – That’s it?

- DUH together with experts from industry has proven the potential of hardware retrofit for diesel vehicles and demands broad application paid by the polluter = the manufacturer
- However, technical improvement alone will not make it
- DUH calls for transport transition: Change of technology, change of fuel, change of use
- Strengthen public transport and collective systems in the long run beyond short term action programs
- Strengthen cycling and walking: More money, more space (even harder)
- Ending detrimental subsidies will create momentum for sustainable alternatives (end of tax reduction for diesel fuel or kerosin)
Additional information on legal cases and outlook
Cases in 28 cities to achieve compliance with ambient air quality standards (binding since 2010)
Highest Administrative Court: Diesel ban one way or the other

Ban on specific streets (Hamburg)

Ban in specific zones
What is our aim in this context?

Too complex?

- Compliance with existing legislation
  - for ambient air quality standards
  - for exhaust emission standards
  - for CO2
- Make sure that standards are achieved on the road, not only in the lab
- Ensure proper market surveillance
What is our aim in this context?

Not only Technology:

- More public transport
  - Sustainable funding needed
  - Collective systems that decrease number of vehicles in the end
- Reduce individual motorized transport in urban regions for better quality of life (road safety, noise, space)
How do cities (re)act?

- Not responsible for emission standards and control
- Limited in funding to support public transport or clean mobility infrastructure
- However: Become more and more self-confident as a driver of transport transition („Verkehrswende“)
- Paris, London, Barcelona announce ban of combustion in the coming years
- German cities want to avoid a diesel ban at all costs and call for hardware-retrofit of diesel cars
- Berlin invests 50 million Euro per year in bicycle infrastructure (but lacks personal for planning and realiasation...and seems to avoid reduction of traffic lanes)
- National and local incentives for e-mobility
- Speed limits – effect is disputed
How do cities (re)act? Conclusion

- If mayors are ambitious, they face opposition from car drivers
- They need support not only from NGOs
- They also need support from national level with regard to market surveillance, funding and legal framework
- Policy tends to avoid short term measures (diesel taxation, subsidies for company cars)
- Policy also avoids stricter regulation for car manufacturers with regard to CO2 and emission standards (Diesel gate still unsolved)
- Weak performance in Diesel gate bears the risk of „exporting“ the problem
- However, some processes are ongoing (improvement of PTI)
Thank you!

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