AIR QUALITY IN OSLO – CHALLENGES AND ACTIONS

Susanne Lützenkirchen
Air quality adviser
City of Oslo - Agency for Urban Environment
susanne.lutzenkirchen@bym.oslo.kommune.no
DISPOSITION

• Some facts about Oslo
• Air quality in Oslo – challenges
• Implemented measures and their effect
SOME FACTS ABOUT OSLO

**Population**: 660,000 inhabitants  
**Employment**: 450,000 people have Oslo as their place of work.

One of the fastest growing cities in Europe

**Geography**:  
The geographical area of Oslo is 450 km², and only 1/3 of the area is developed

**Topography**  
The city of Oslo is located in a large pot formation in the enclosing surroundings. This topography of Oslo contributes to episodes of inversion in the winter.
SOME MORE FACTS ABOUT OSLO

Trends in population, traffic and public transport
AIR QUALITY IN OSLO – POLLUTION SOURCES

NO$_2$:
- Traffic - mainly exhaust from diesel vehicles

PM (particles):
- Traffic – mainly resuspended road dust (use of studded tyres), some exhaust particles
- Wood burning – significant contribution in the coldest months (Dec-Feb)
- Background - relatively large contribution from other regions and countries

AIR QUALITY – NO2 EXHAUST CHALLENGE

Results from the EMIROAD project – Institute of transport economics (NO) 2016, https://www.toi.no/english/?lang=en_GB
### LIMIT VALUES

**THE NORWEGIAN POLLUTION CONTROL REGULATIONS**

<table>
<thead>
<tr>
<th>PM$_{10}$</th>
<th>Limit value in µg/m$^3$</th>
<th>2005 to 2015</th>
<th>From 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual mean</td>
<td>40</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>PM$_{10}$ Daily mean</td>
<td>50</td>
<td>50 Limit value may be exceeded 30 times</td>
<td></td>
</tr>
<tr>
<td>PM$_{2.5}$ Annual mean</td>
<td>25</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO$_2$</th>
<th>Limit value in µg/m$^3$</th>
<th>2005 to 2015</th>
<th>From 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual mean</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO$_2$ Hourly mean</td>
<td>200</td>
<td></td>
<td>Limit value may be exceeded 18 times</td>
</tr>
</tbody>
</table>
IMPLEMENTED MEASURES AND THEIR EFFECT
AIR QUALITY IN OSLO NOW

PM$_{10}$ annual mean

Results from the monitoring stations (2005-2018)

Modelled air pollution (for 2014)
PM10

AIR QUALITY IN OSLO NOW

PM$_{10}$ – exceedances of the daily mean limit value

Results from monitoring stations (2005-2018)  
Modelled air pollution (for 2014)
AIR QUALITY IN OSLO

NO₂ annual mean

Results from monitoring stations (2005-2018)
MEASURES FOR BETTER AIR QUALITY
ELECTROMOBILITY

BENEFITS

https://elbil.no/english/
Oslo package 3
Program for transport in the Oslo area
Ambitious environmental goals:

- 50% reduction of direct greenhouse gas emissions by 2020 (95% in 2030)
- Low emission transport
- 20% traffic reduction by 2019 (1/3 in 2030)

### ENVIRONMENTAL ROAD TOLL FEES

<table>
<thead>
<tr>
<th>Light duty vehicles</th>
<th>Light duty vehicles - zero emission</th>
<th>Heavy duty vehicles</th>
<th>Heavy duty vehicles - zero emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>€ 3.6</td>
<td>0</td>
<td>€ 10.8</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Revised Oslo Package 3 charges

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>€ 5.2</td>
<td>€ 5.2</td>
<td>€ 5.2</td>
<td>€ 5.2</td>
</tr>
<tr>
<td>€ 4.7</td>
<td>€ 4.7</td>
<td>€ 4.7</td>
<td>€ 4.7</td>
</tr>
<tr>
<td>0</td>
<td>€ 1.1</td>
<td>€ 2.2</td>
<td>€ 1.1</td>
</tr>
<tr>
<td>€ 17.4</td>
<td>€ 17.4</td>
<td>€ 17.4</td>
<td>€ 17.4</td>
</tr>
<tr>
<td>€ 10.9</td>
<td>€ 10.9</td>
<td>€ 10.9</td>
<td>€ 10.9</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>€ 3.3</td>
</tr>
</tbody>
</table>

#### Extra charge in rush hour

<table>
<thead>
<tr>
<th>Light duty vehicles - diesel</th>
<th>Light duty vehicles - petrol and hybrid</th>
<th>Light duty vehicles - zero emission</th>
<th>Heavy duty vehicles - Euro V and older</th>
<th>Heavy duty vehicles - Euro VI</th>
<th>Heavy duty vehicles - zero emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>€ 1.1</td>
<td>€ 4.7</td>
<td>€ 2.2</td>
<td>€ 17.4</td>
<td>€ 10.9</td>
<td>0</td>
</tr>
</tbody>
</table>
IMPLEMENTED MEASURES AND THEIR EFFECT

NO$_2$-annual mean

NO$_2$ annual mean at selected stations

Modelled air quality for 2018 (Oslopakke 3)
MEASURES FOR BETTER AIR QUALITY
BAN OF DIESEL CARS

Tuesday 17th of January 2017

Source: www.vg.no

Source: TV2

200µg/m³
NO₂ hourly mean

Oslos air quality is improving

YES, but...

Still a challenge to meet the Norwegian limit values everywhere

Revised action plan
REVISED ACTION PLAN FOR BETTER AIR QUALITY IN OSLO 2018-2020
Thank you for your attention!