

# Air Quality in Oslo

Agency for Urban Environment  
City of Oslo

Oslo European Green Capital 2019



# Disposition

- ▶ Some facts about Oslo
- ▶ Monitoring and forecasting
- ▶ Air quality in Oslo - challenges
- ▶ Implemented measures and their effect
- ▶ Air quality action plan 2018-2020



# 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 km<sup>2</sup>, and only 1/3 of the area is developed

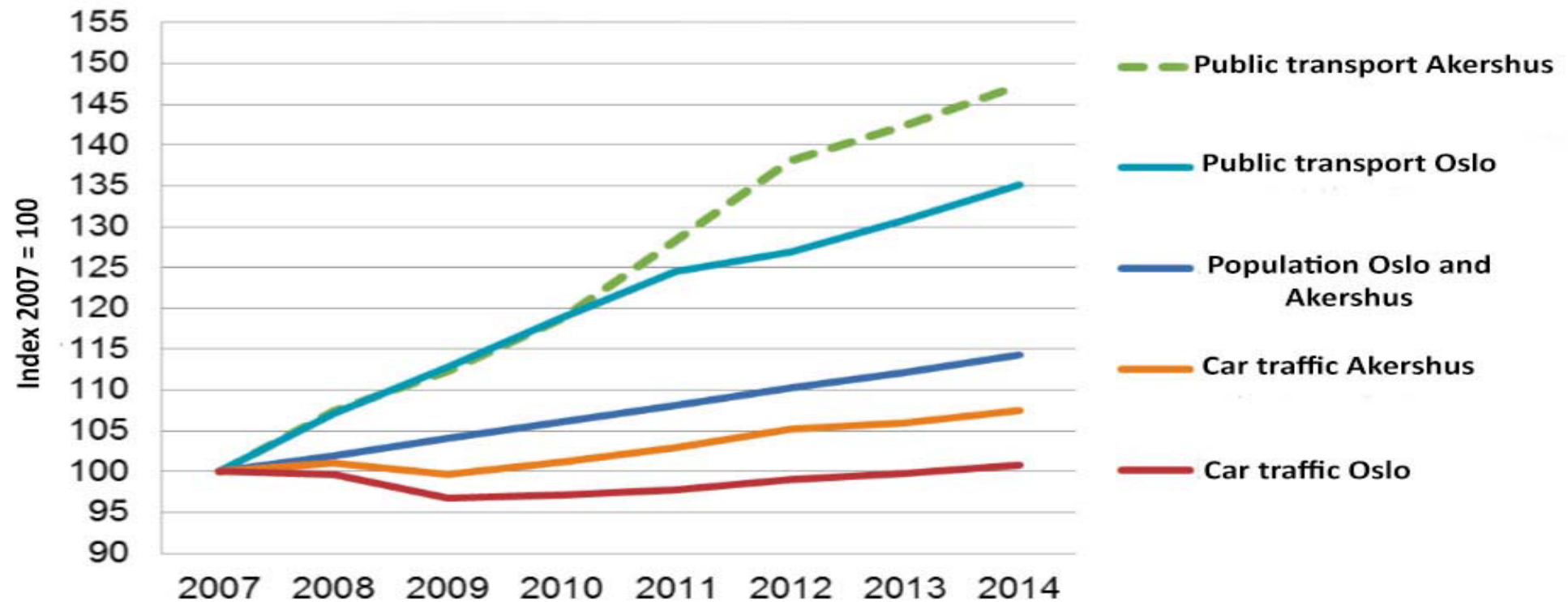
- ▶ **Topography**

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.

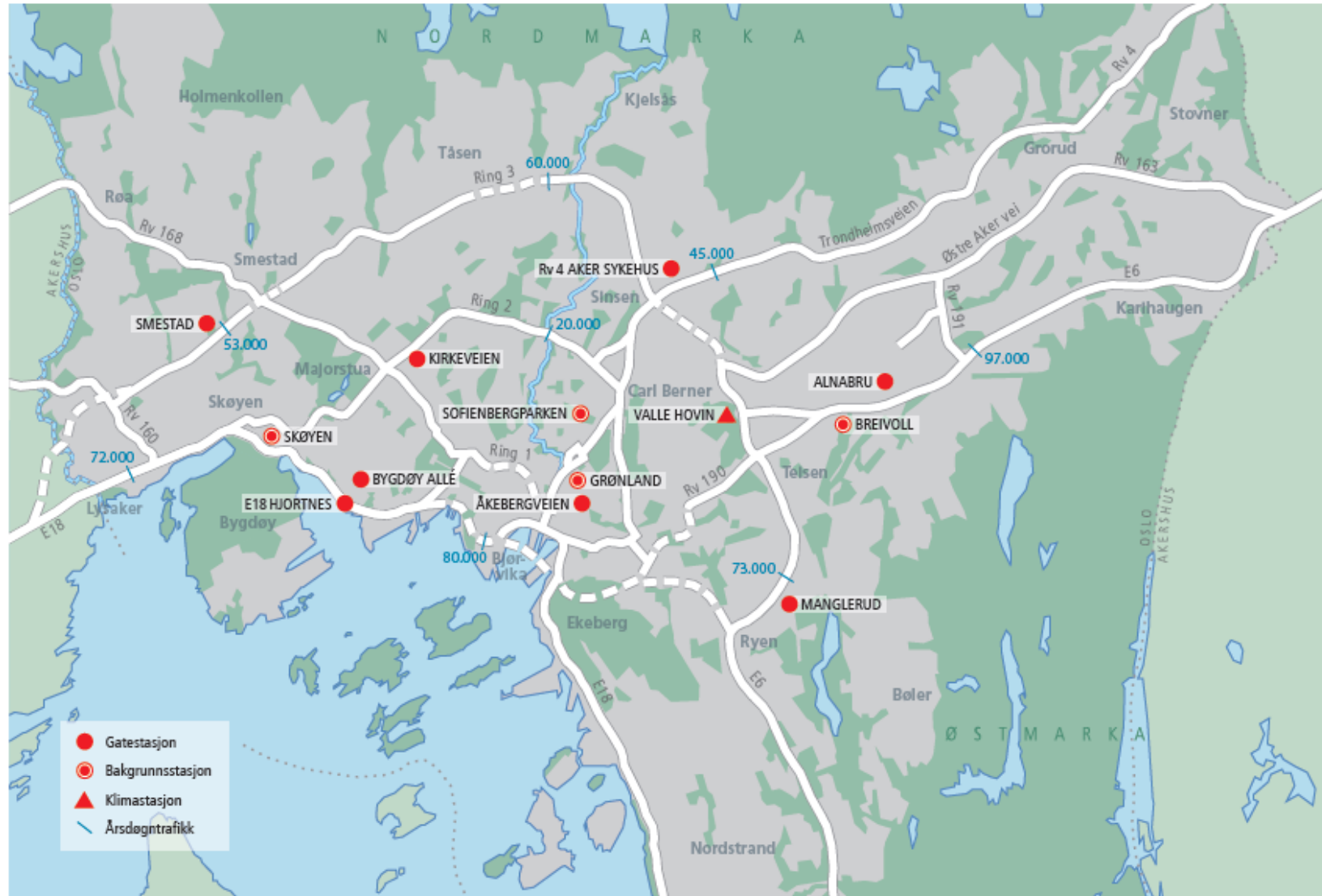


# Some more facts about OSLO

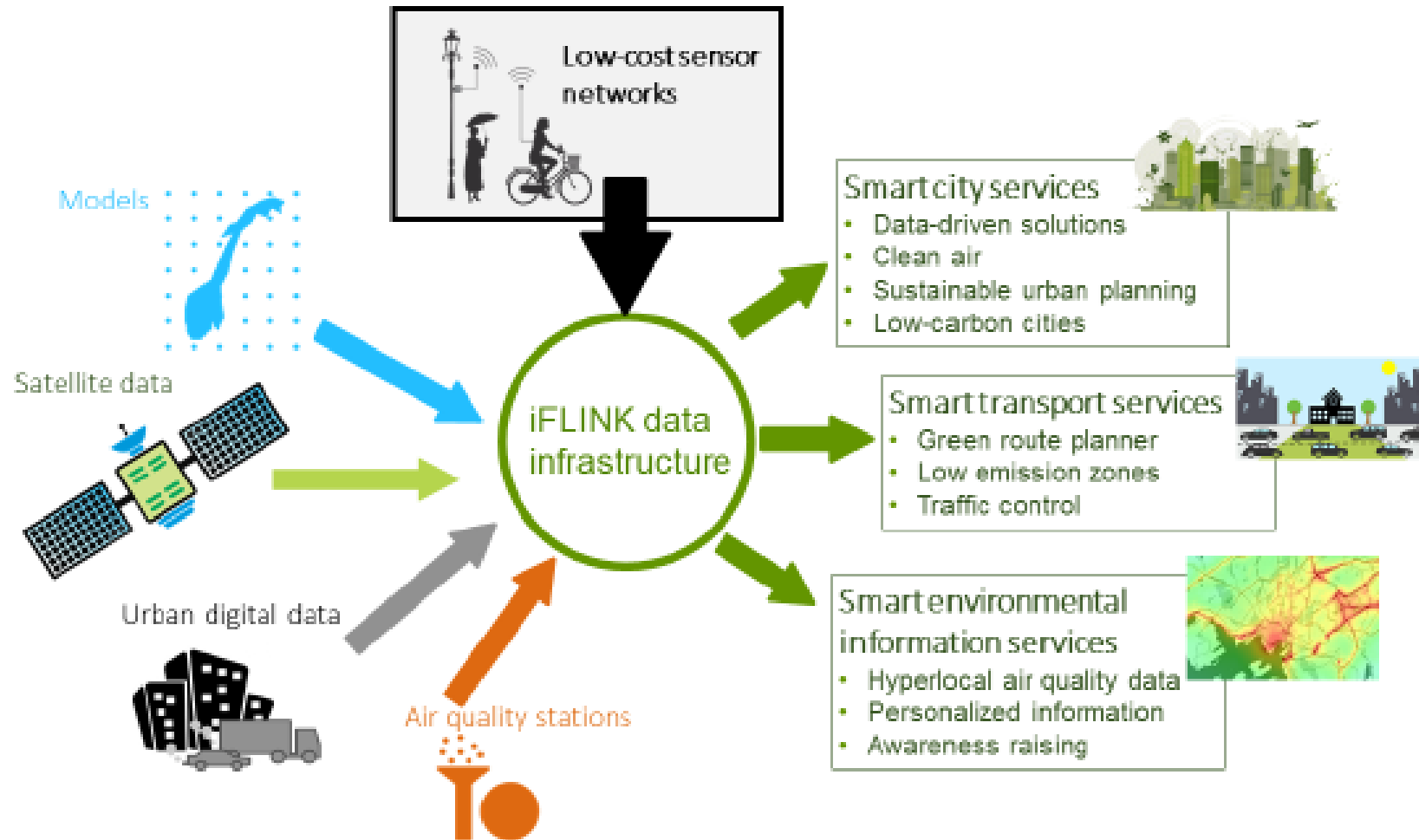
Trends in population, traffic and public transport



# Monitoring air quality



# Monitoring air quality – new methods



# National forecasting service - <https://luftkvalitet.miljostatus.no/>



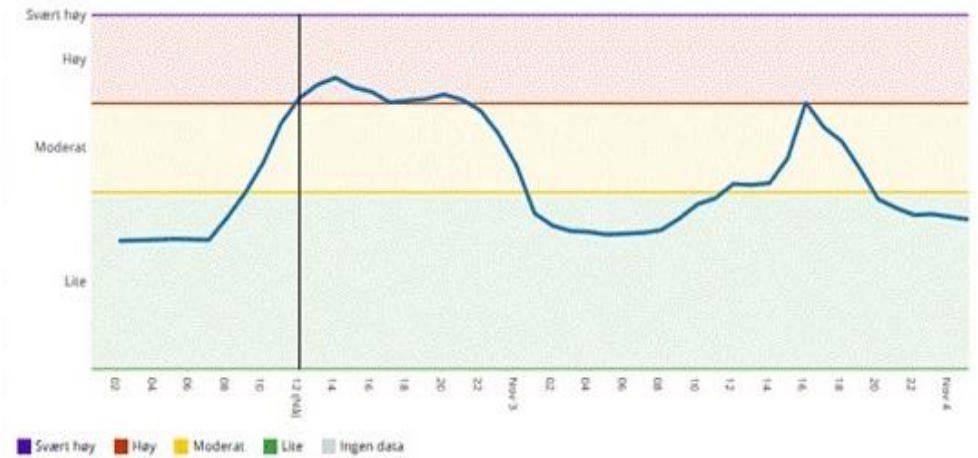
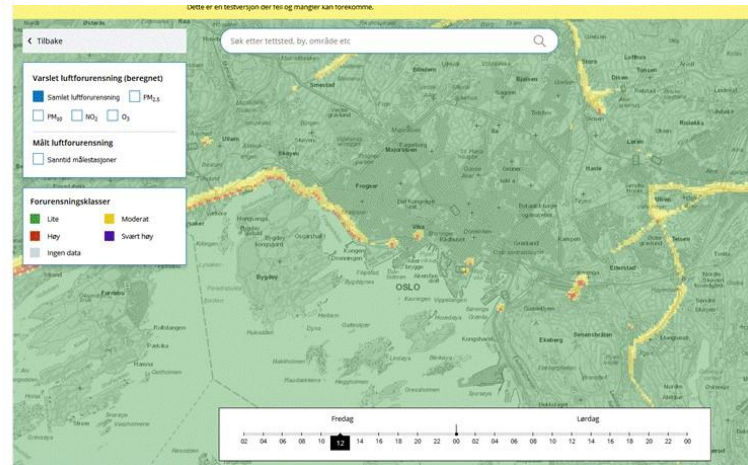
Luftforurensning nå  
**Lite**

[Vis detaljerte helseråd](#) ▼

*Varslet er basert på beregninger utført av Meteorologisk institutt. Data for "1 morgen" vises først etter at varslet er oppdatert (oppdateres hver morgen).*

Lav helserisiko  
Liten eller ingen risiko for helseeffekter.

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# Air quality in Oslo – Pollution sources

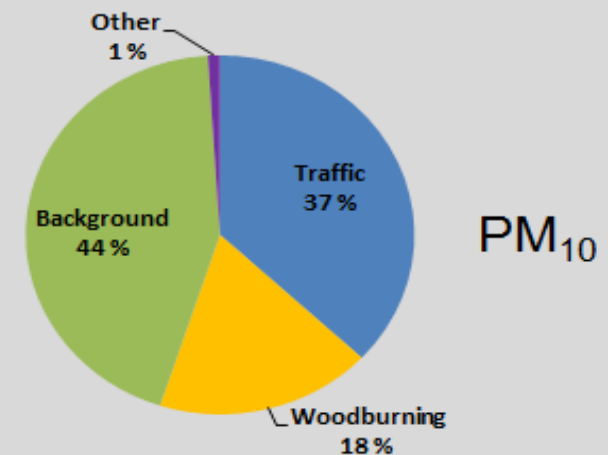
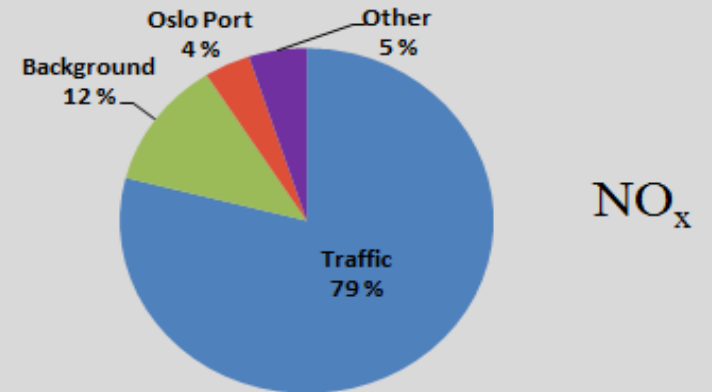
## ▶ **NO<sub>2</sub>:**

Traffic - mainly exhaust from diesel vehicles

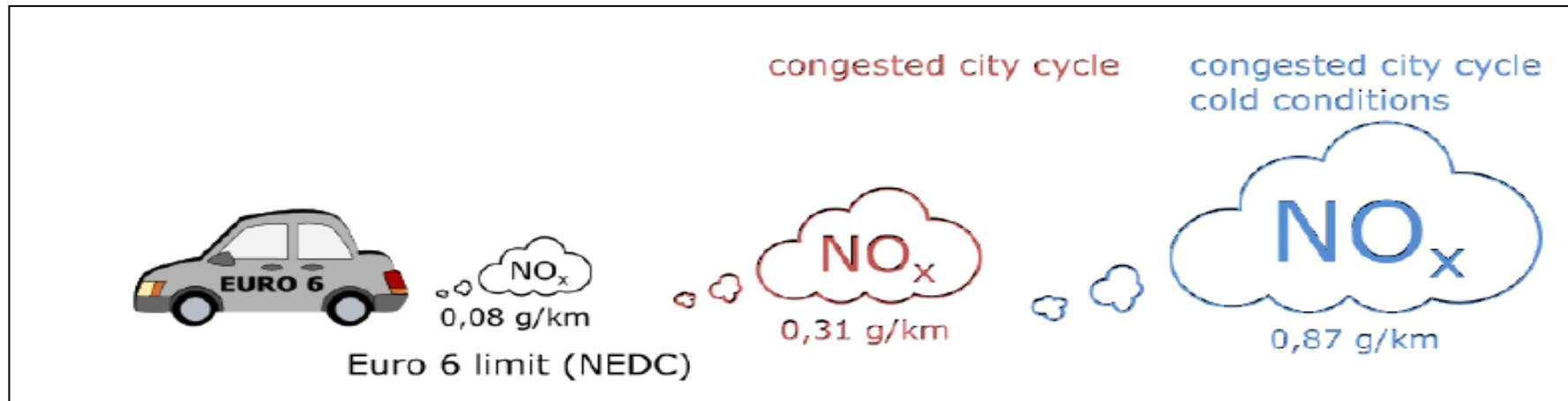
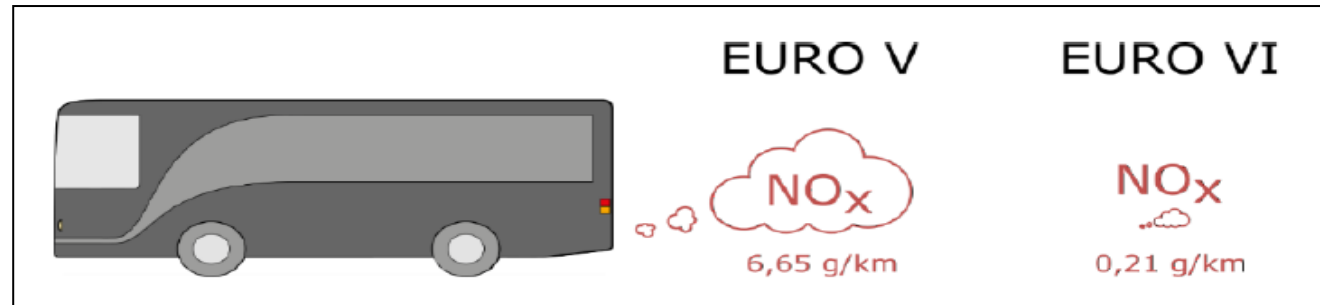
## ▶ **PM (particles):**

- 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

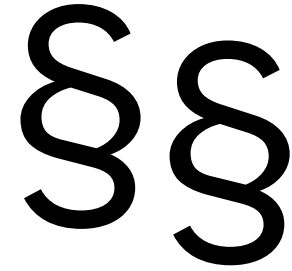
Relative contribution from different sources in Oslo to total concentration (2013):



# Air Quality – The Exhaust Challenge



# LIMIT VALUES (The Norwegian Pollution Control Regulations)

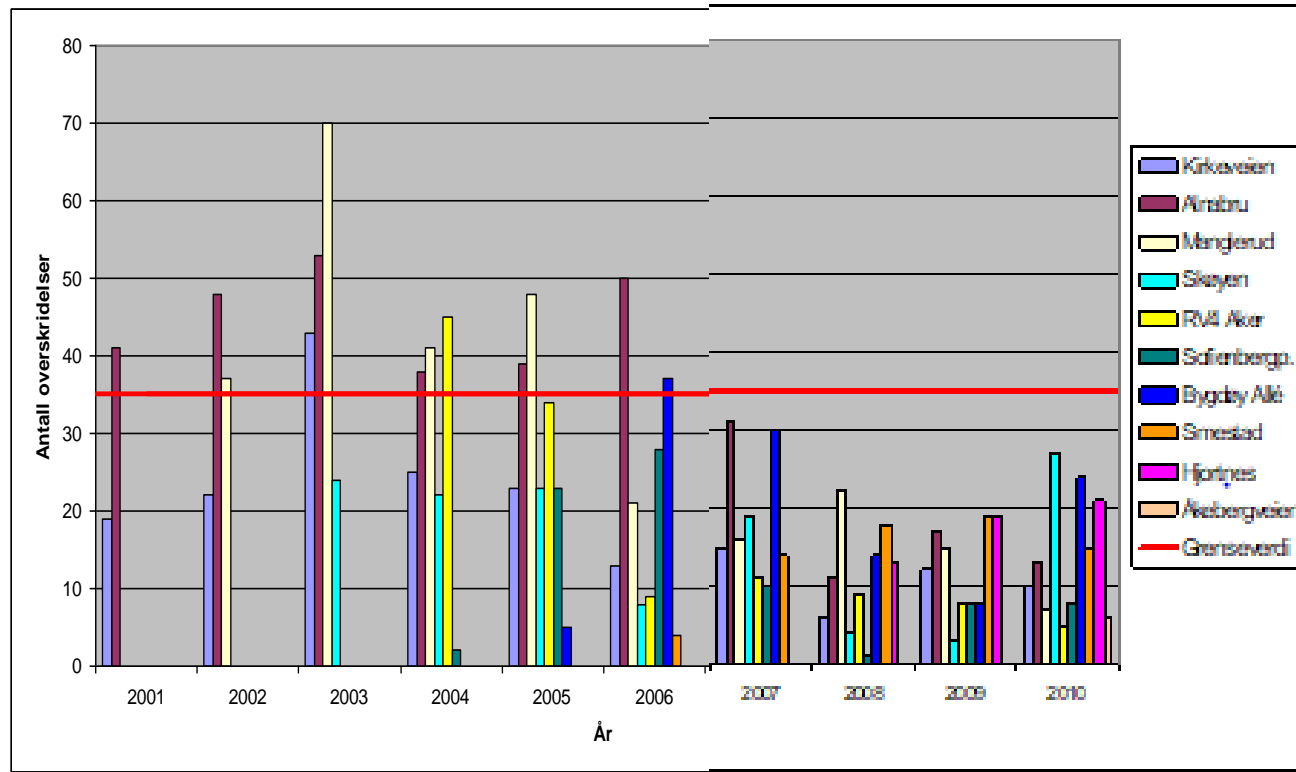


	Limit value in $\mu\text{g}/\text{m}^3$	
	2005 to 2015	From 2016
<b>PM<sub>10</sub></b> Annual mean	40	25
<b>PM<sub>10</sub></b> Daily mean	50 Limit value may be exceeded <u>35</u> times	50 Limit value may be exceeded <u>30</u> times
<b>PM<sub>2.5</sub></b> Annual mean	25	15
	Limit value in $\mu\text{g}/\text{m}^3$	
<b>NO<sub>2</sub></b> Annual mean	40	
<b>NO<sub>2</sub></b> Hourly mean	200 Limit value may be exceeded <u>18</u> times	



# PM10

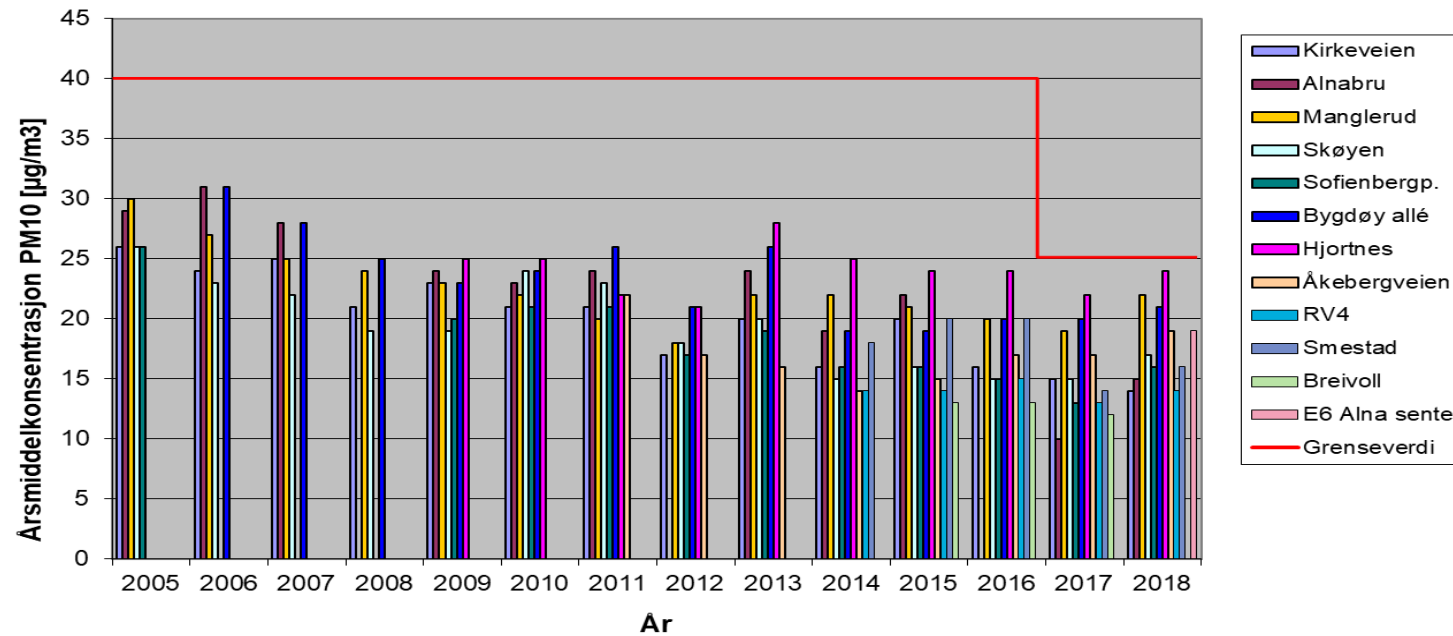
## IMPLEMENTED MEASURES AND THEIR EFFECT



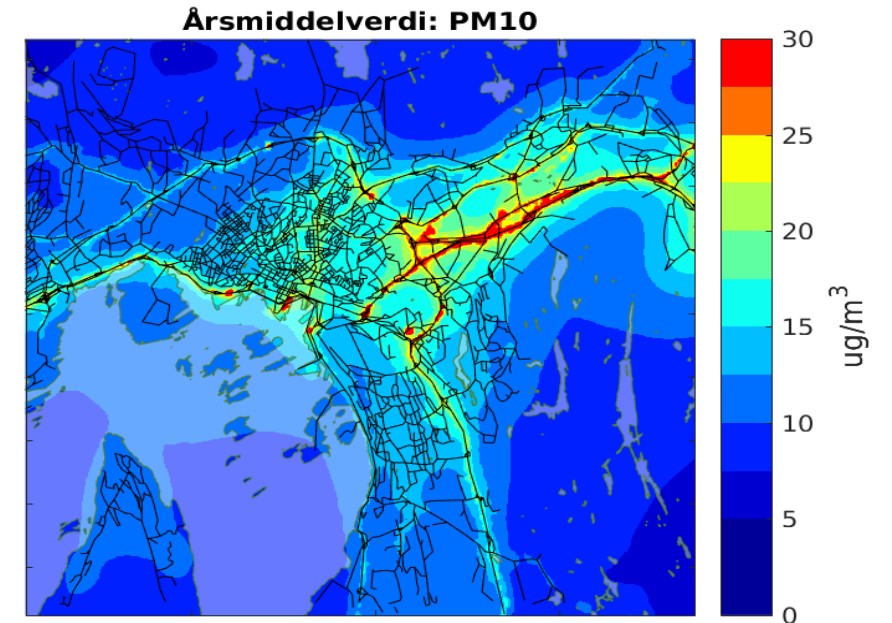
# PM10

## Air Quality in Oslo **NOW**

▶ PM<sub>10</sub> annual mean



Results from the monitoring stations (2005-2018)

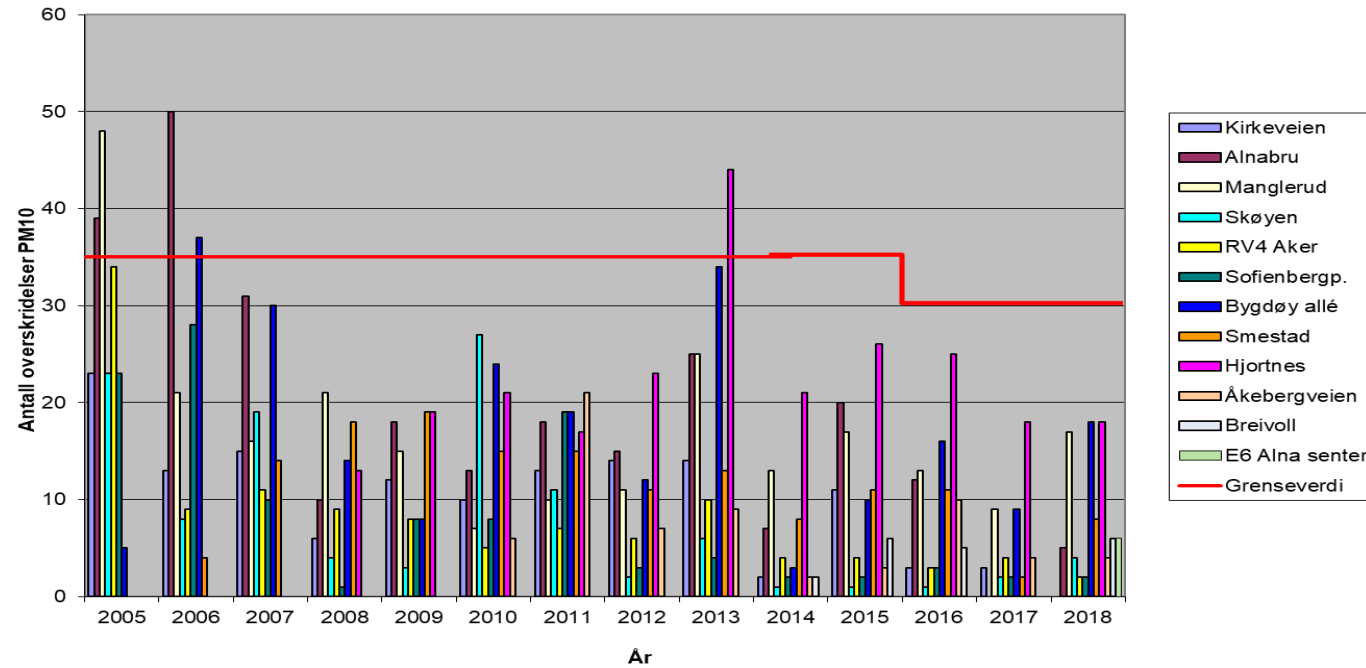


Modelled air pollution (for 2014)

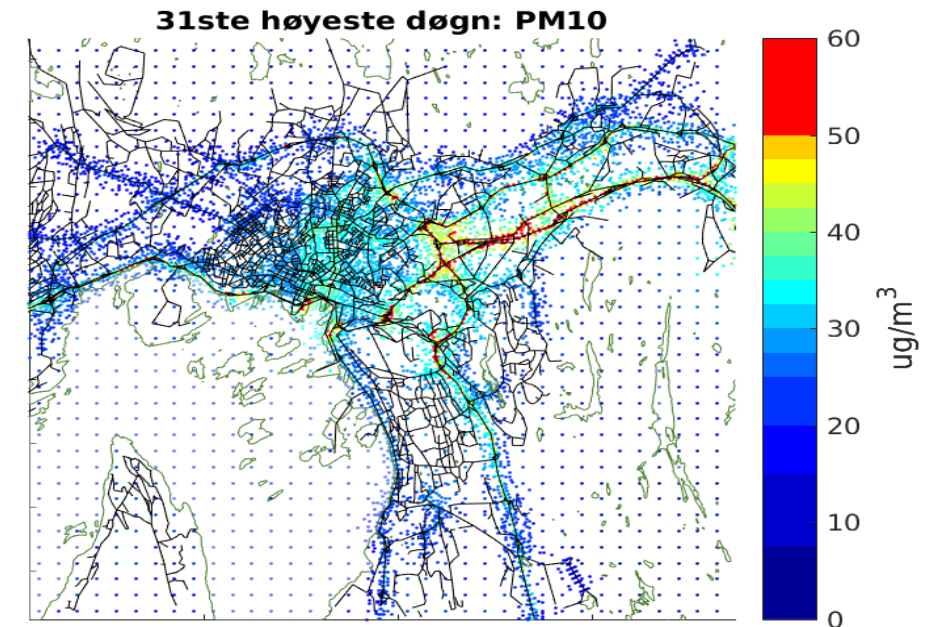
# PM10

## Air Quality in Oslo **NOW**

- ▶ PM<sub>10</sub> – exceedances of the daily mean limit value



Results from monitoring stations (2005-2018)

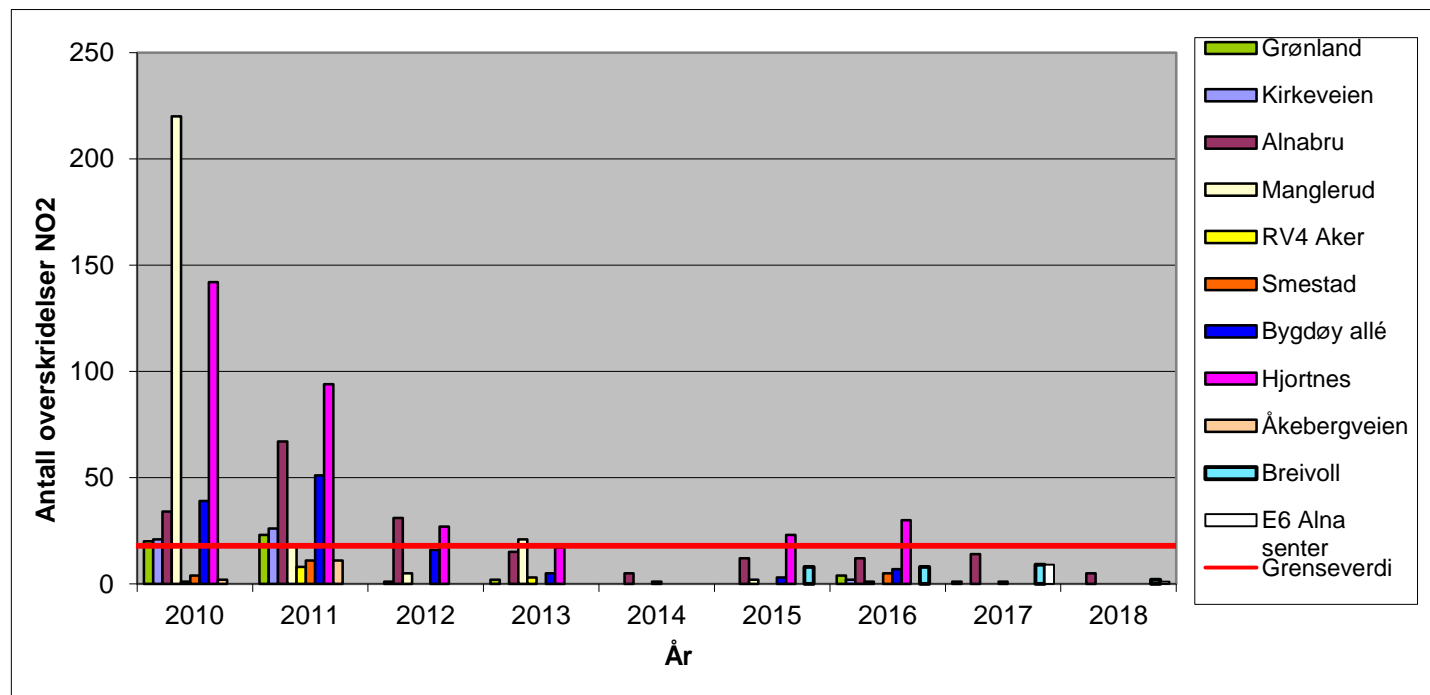


Modelled air pollution (for 2014)

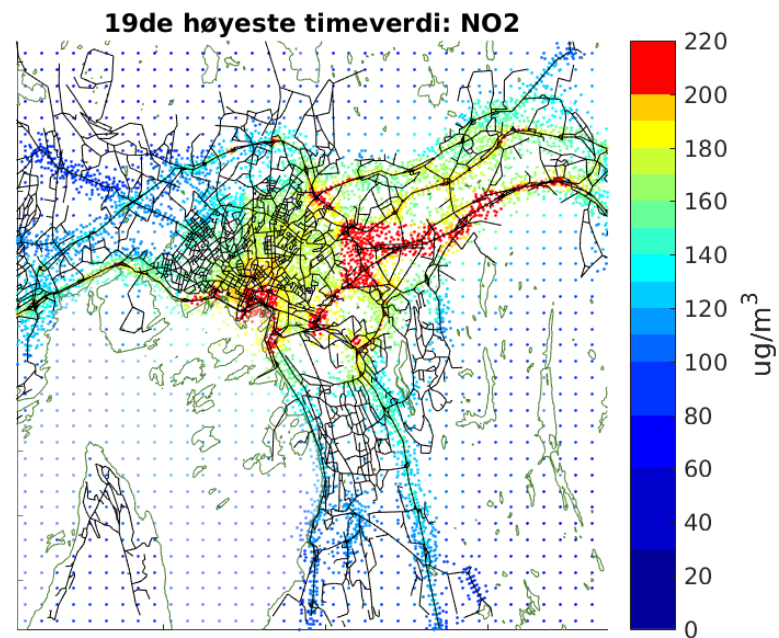
# NO2

## Air Quality in Oslo

- ▶ NO<sub>2</sub> number of exceedances of the hourly mean limit value



Results from monitoring stations (2005-2018)



Modelled air pollution (for 2014)

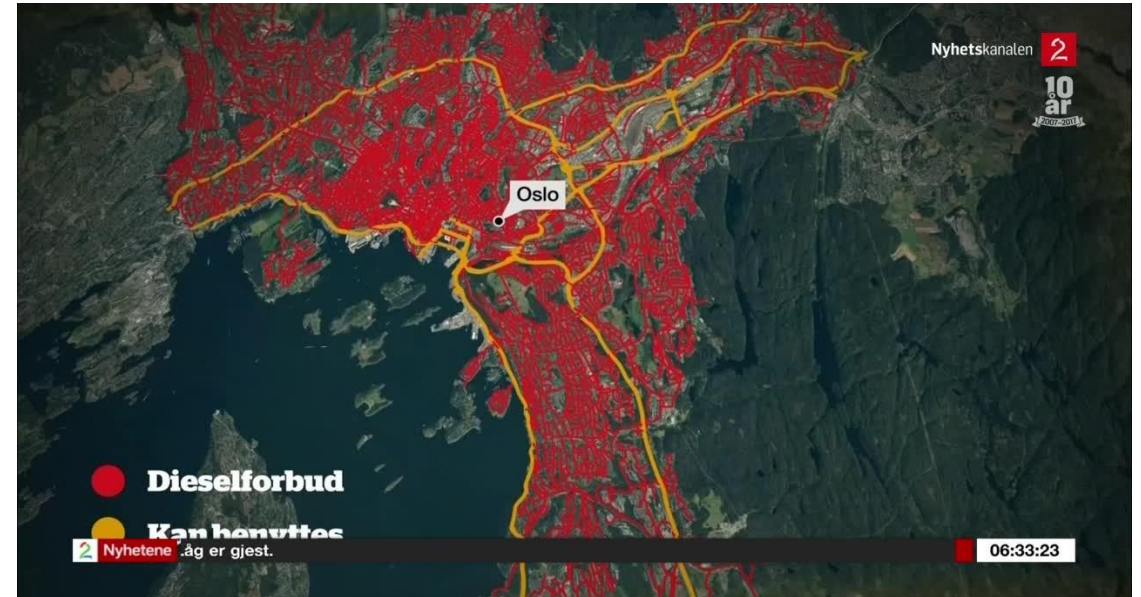


# Measures for better Air Quality **Ban of diesel cars**

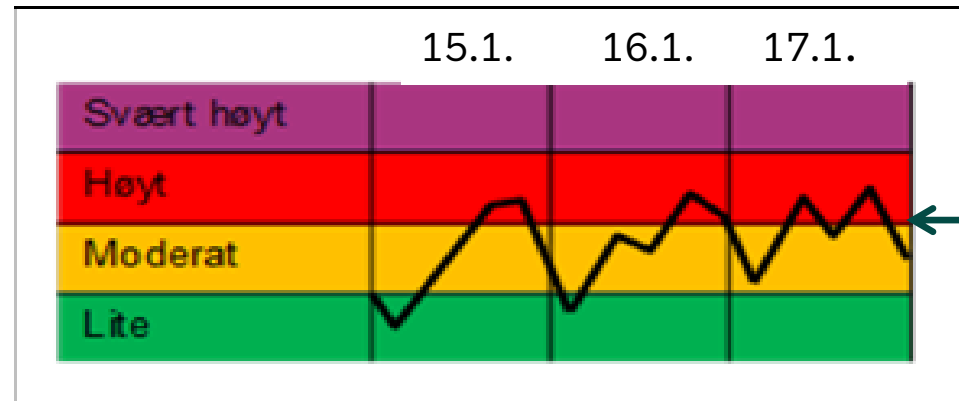
▶ Tuesday 17th of January 2017



Source: [www.vg.no](http://www.vg.no)



Source: TV2

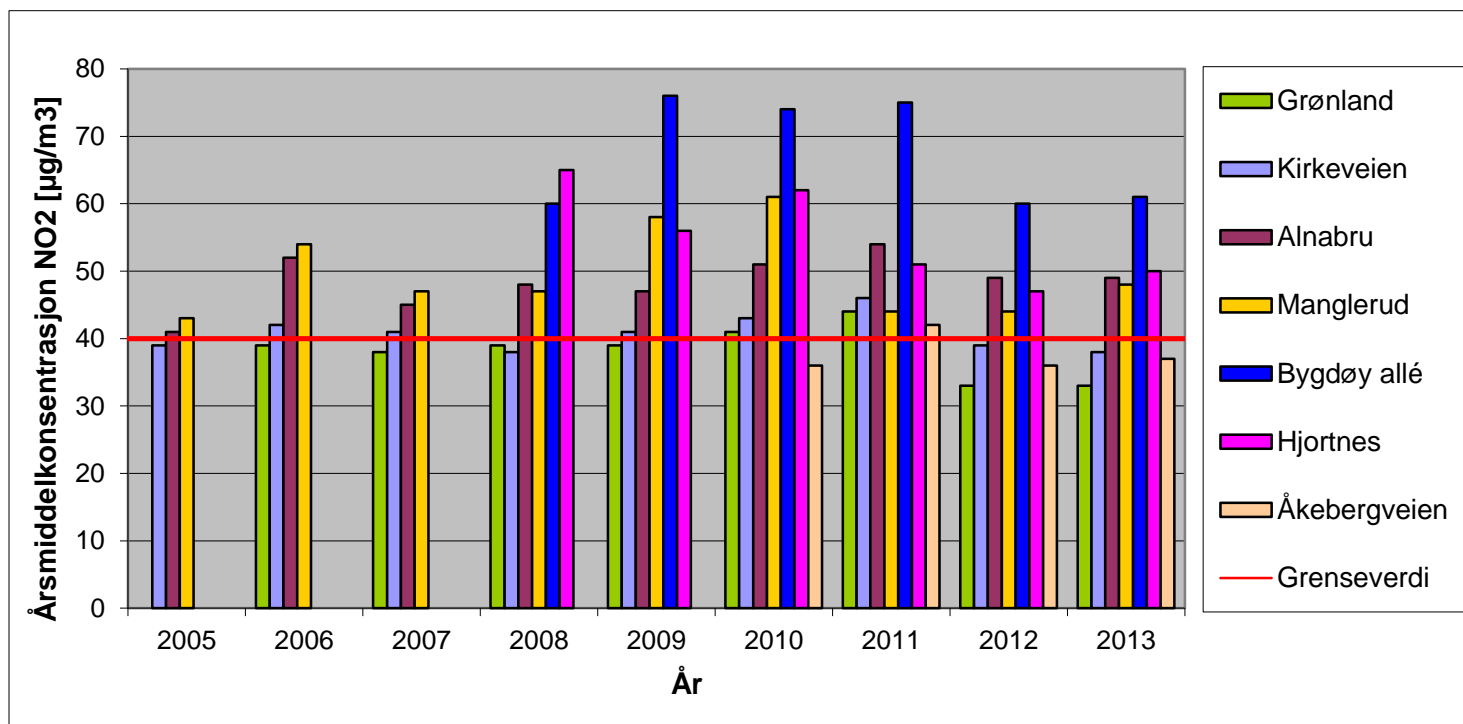


200 µg/m<sup>3</sup>  
NO<sub>2</sub> hourly mean

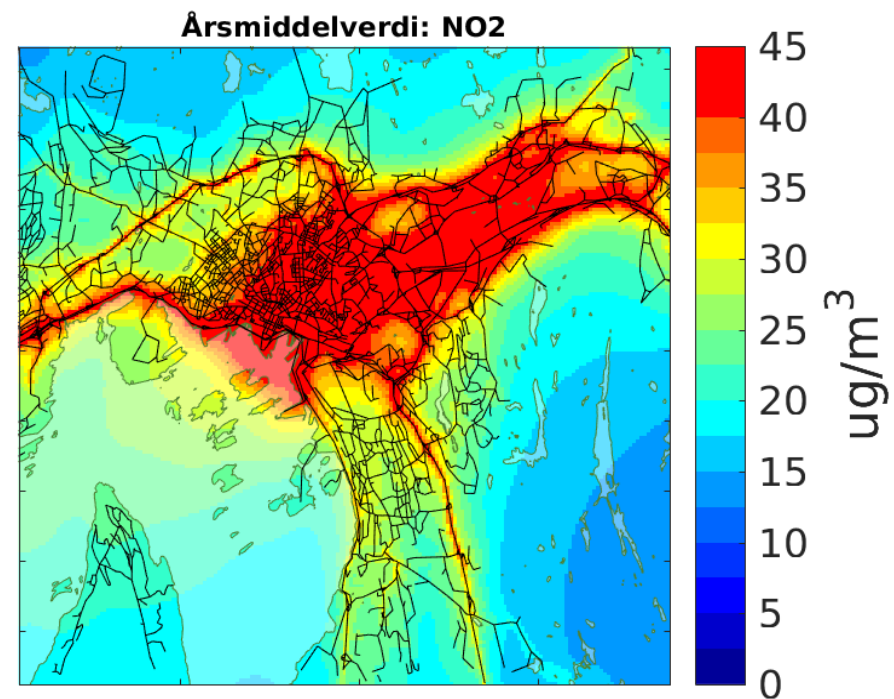
# NO2

## Air Quality in Oslo

◆ NO<sub>2</sub> annual mean



Results from monitoring stations (2005-2018)



Modelled air pollution (for 2014)



# MEASURES FOR BETTER AIR QUALITY ELECTROMOBILITY

## Benefits



		
 3,5t	Kr	75
	Kr	25
 EL	Kr	0

# MEASURES FOR BETTER AIR QUALITY

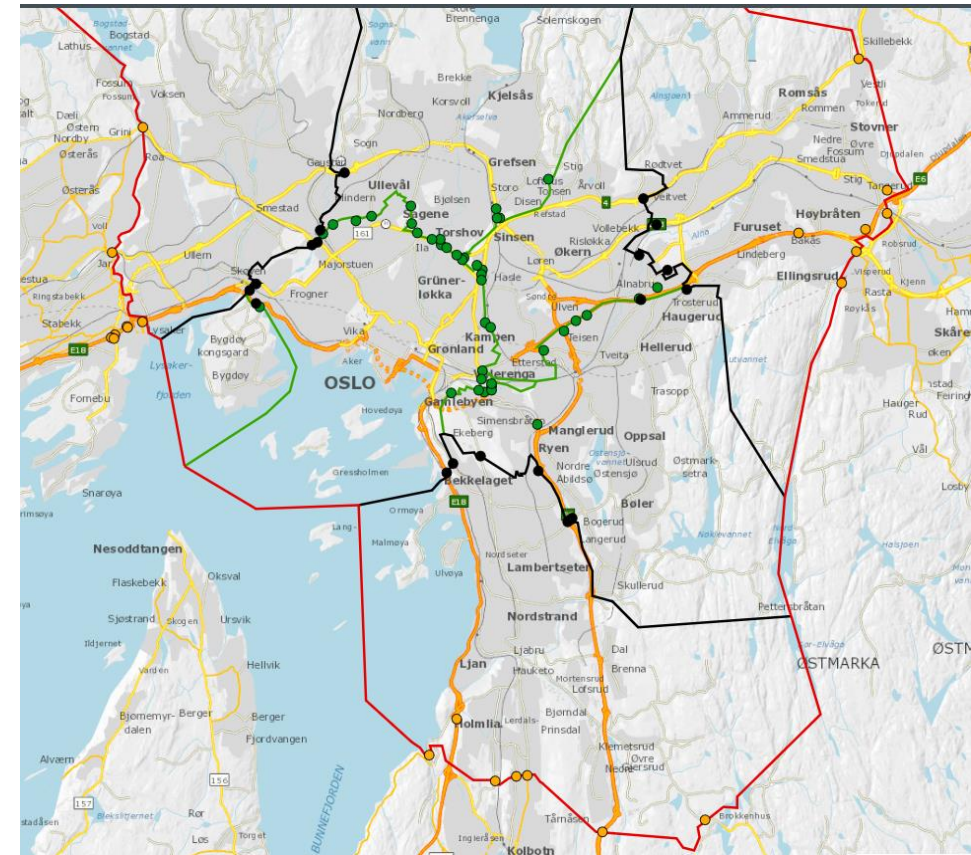
## ENVIRONMENTAL ROAD TOLL

### Oslopackage 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)



Source: The Norwegian Public Roads Administration



Oslo

# MEASURES FOR BETTER AIR QUALITY

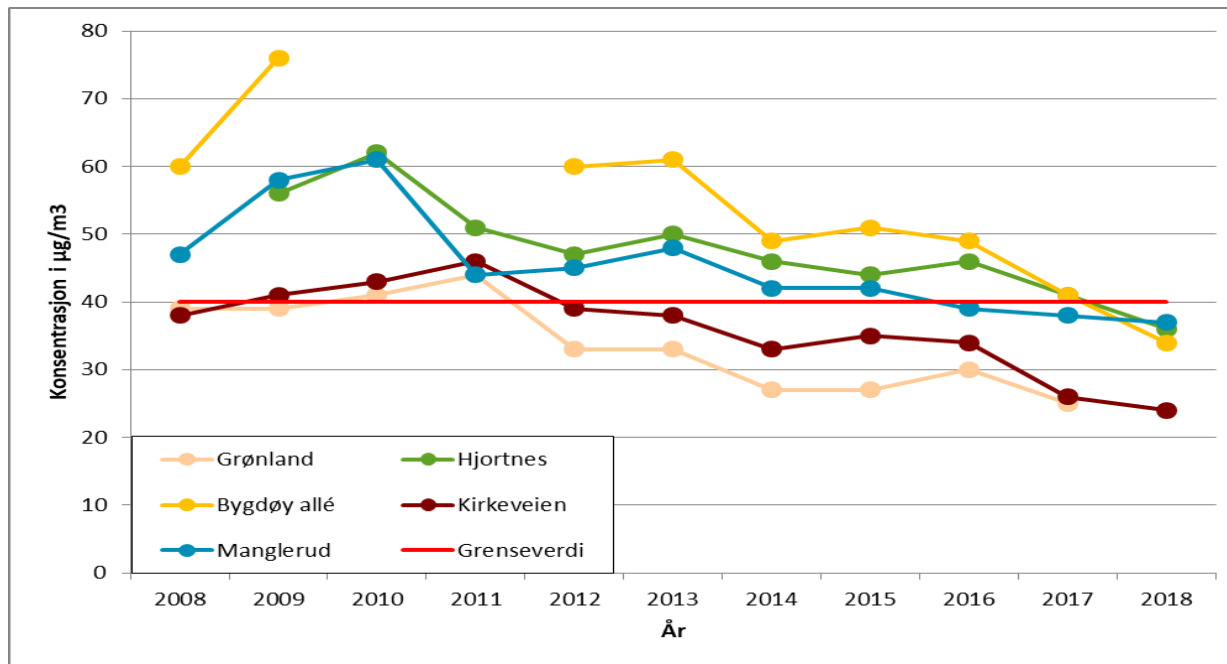
## ENVIRONMENTAL ROAD TOLL

	Charges in 2016						
	Light duty vehicles		Light duty vehicles -zero emission	Heavy duty vehicles		Heavy duty vehicles - zero emission	
	€ 3.6		0	€ 10.8		0	
	Revised Oslo Package 3 charges						
	Light duty vehicles -diesel	Light duty vehicles - petrol and hybrid	Light duty vehicles - zero emission	Heavy duty vehicles - Euro V and older	Heavy duty vehicles - Euro VI	Heavy duty vehicles - zero emission	
	Stage 1: 2017	€ 5.2	€ 4.7	0	€ 17.4	€ 10.9	0
	Stage 2: 2018-2019	€ 5.2	€ 4.7	€ 1.1	€ 17.4	€ 10.9	0
	Stage 3: 2020 →	€ 5.2	€ 4.7	€ 2.2	€ 17.4	€ 10.9	0
Extra charge in rush hour	€ 1.1			€ 3.3			

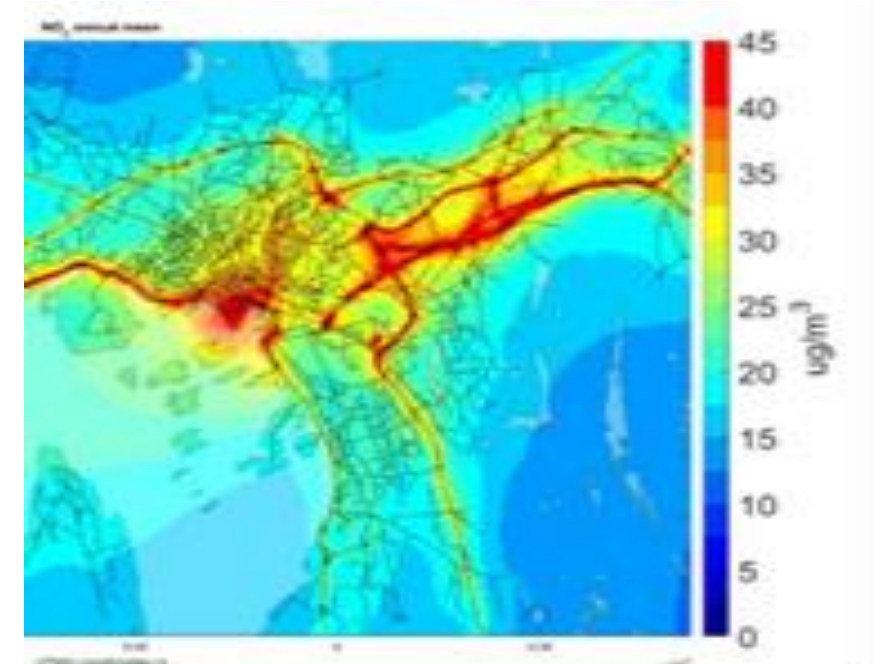


# Implemented Measures and their Effect

## ▶ NO<sub>2</sub>-annual mean



NO<sub>2</sub> annual mean at selected stations

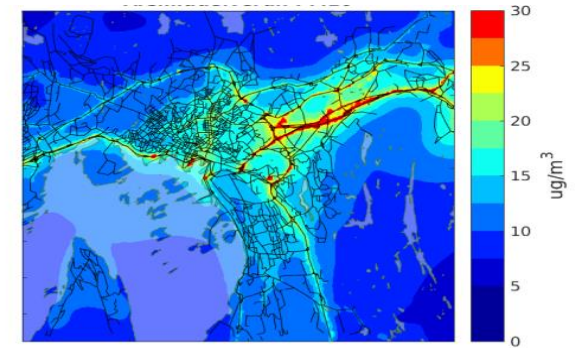


Modelled air quality for 2018 (Oslopakke 3)

Oslo's 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!



OSLO

Winner 2019



An initiative of the  
European Commission



Oslo