



The Norwegian studded tyre fee scheme

A Presentation by Pål Rosland, NRPA, April 2019

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- The air quality warning system (<https://luftkvalitet.miljostatus.no>)



Pål Rosland



The Norwegian studded tyre fee scheme

The Historie – In the 19s

Growing problem with road dust during the 19s

- Serious health problem
- Most people use studded tires
- Increasing road traffic

Road damage

- The studded tires wear the asphalt
- Costly re-asphalting every second year

The legislation

- Stricter technical requirements for studded tires
- Fee for the use of studded tires in the cities
- Fee to internalise the health problem into the price of driving



The Norwegian studded tyre fee scheme

The legislation

The fee regulation for use of studded tires and penalty

- Forskrift om gebyr for bruk av piggdekk og tilleggsgebyr
<https://lovdata.no/dokument/SF/forskrift/1999-05-07-437?q=piggdekkgebyr>
- The local authority decide the fee-zone (the whole municipality)
- The fee has to be prepaid before driving inside the zone
- Paying via internet is most common
- The payment is connected to the registration number
- Using ANPR camera to control the vehicles
- The penalty is a extra fee – a surcharge
- The price:
 - 1400 Nkr pr. Sesong
 - 450 Nkr pr. Mounth
 - 35 Nkr pr. Day



The Norwegian studded tyre fee scheme

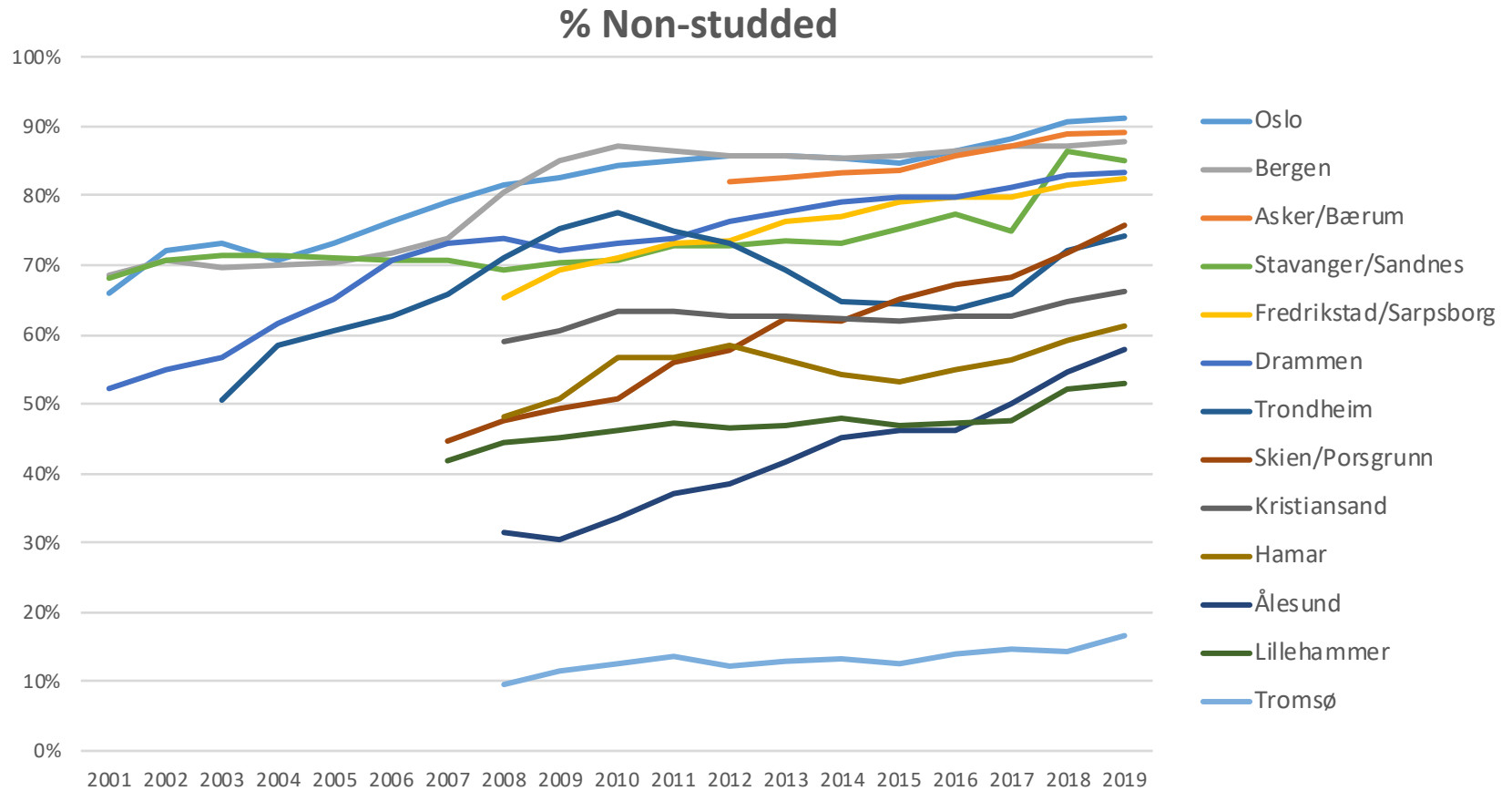
The effect

- We reduce the proportion of studded tires
- We improve the air quality
- Because of the fee we increase the income to the municipality
- High proportion of non-studded tyre don't reduce road safety



The Norwegian studded tyre fee scheme

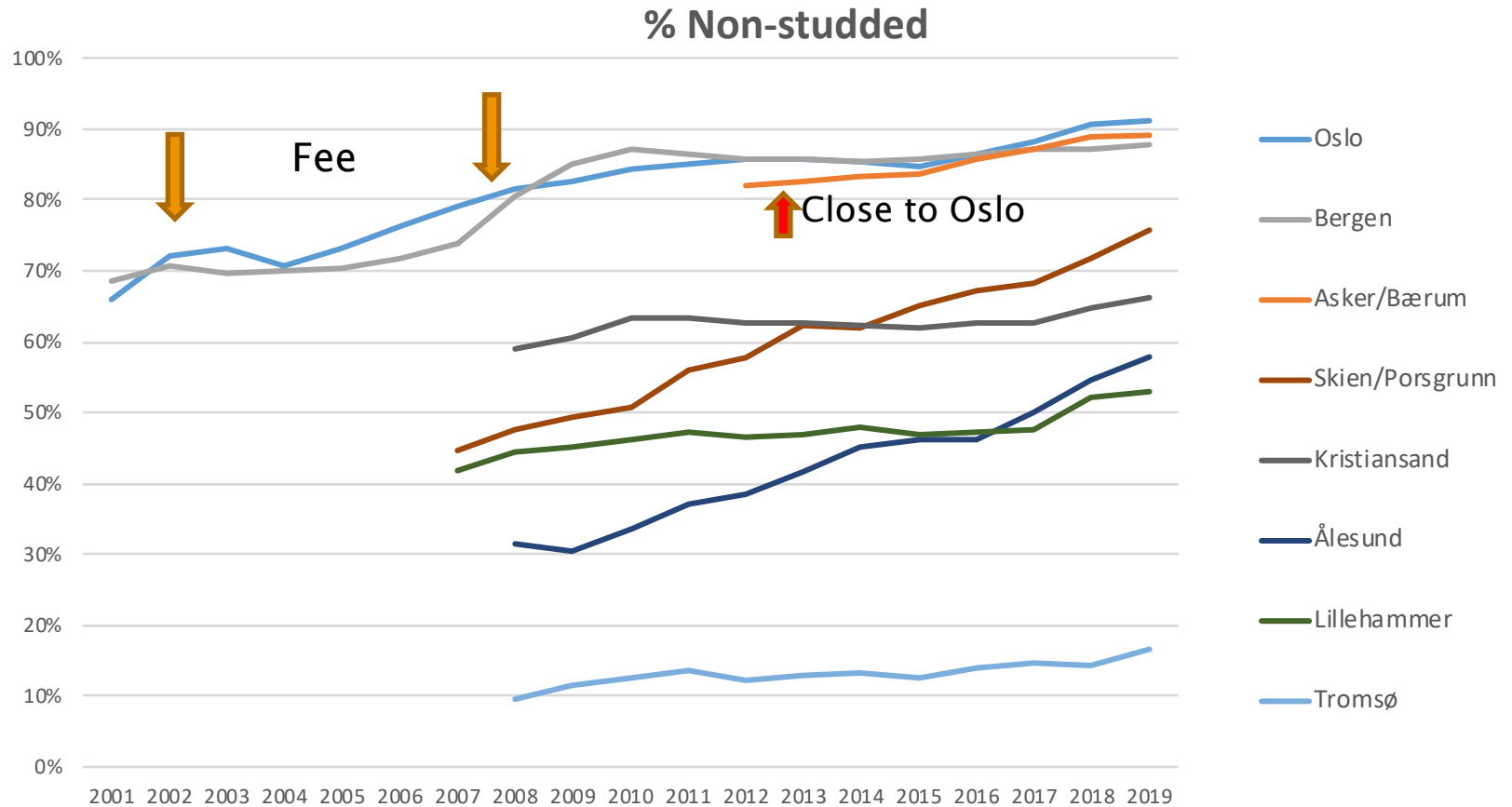
Increase the proportion of non-studded tires





The Norwegian studded tyre fee scheme

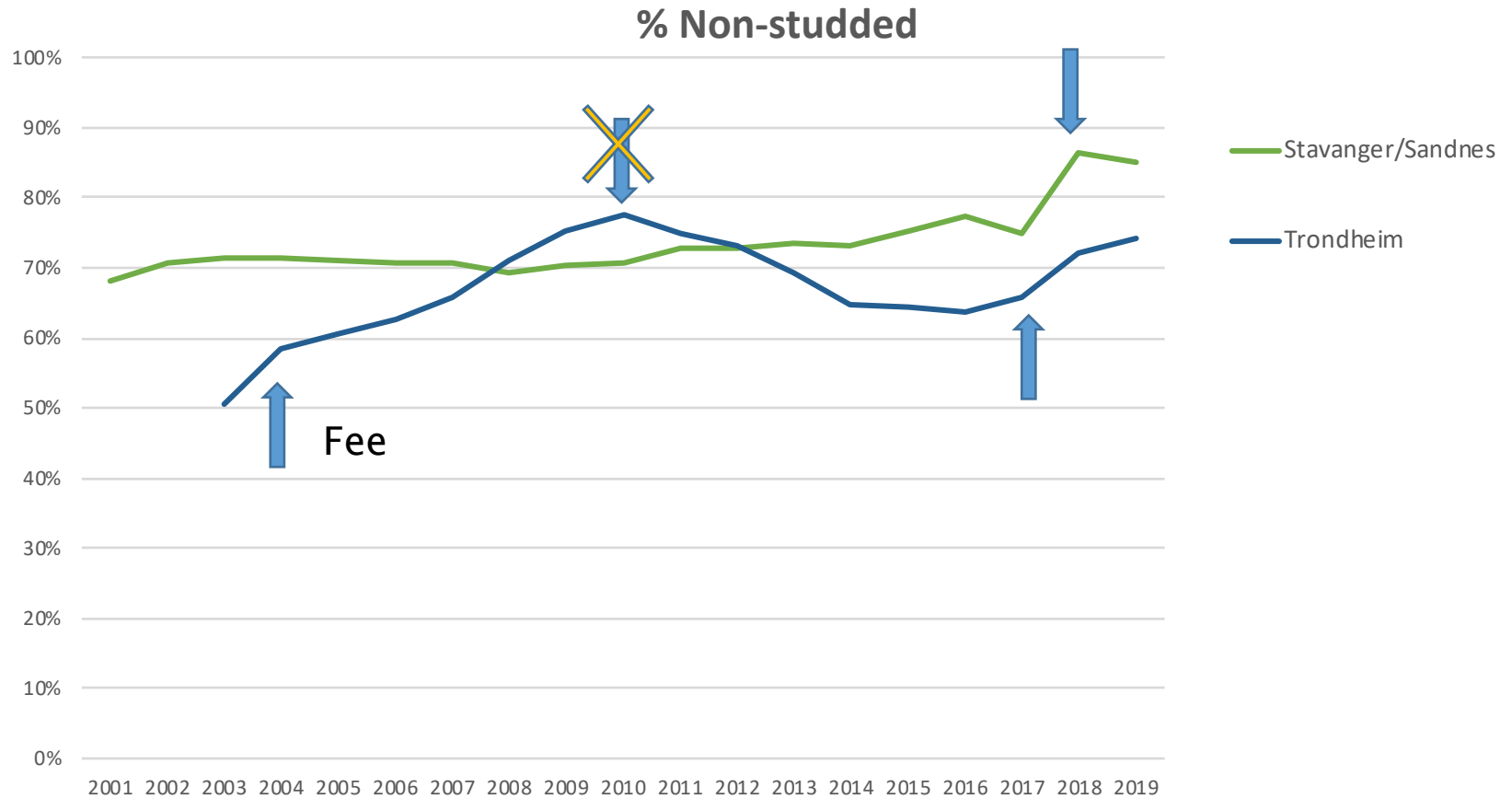
Increase the proportion of non-studded tires





The Norwegian studded tyre fee scheme

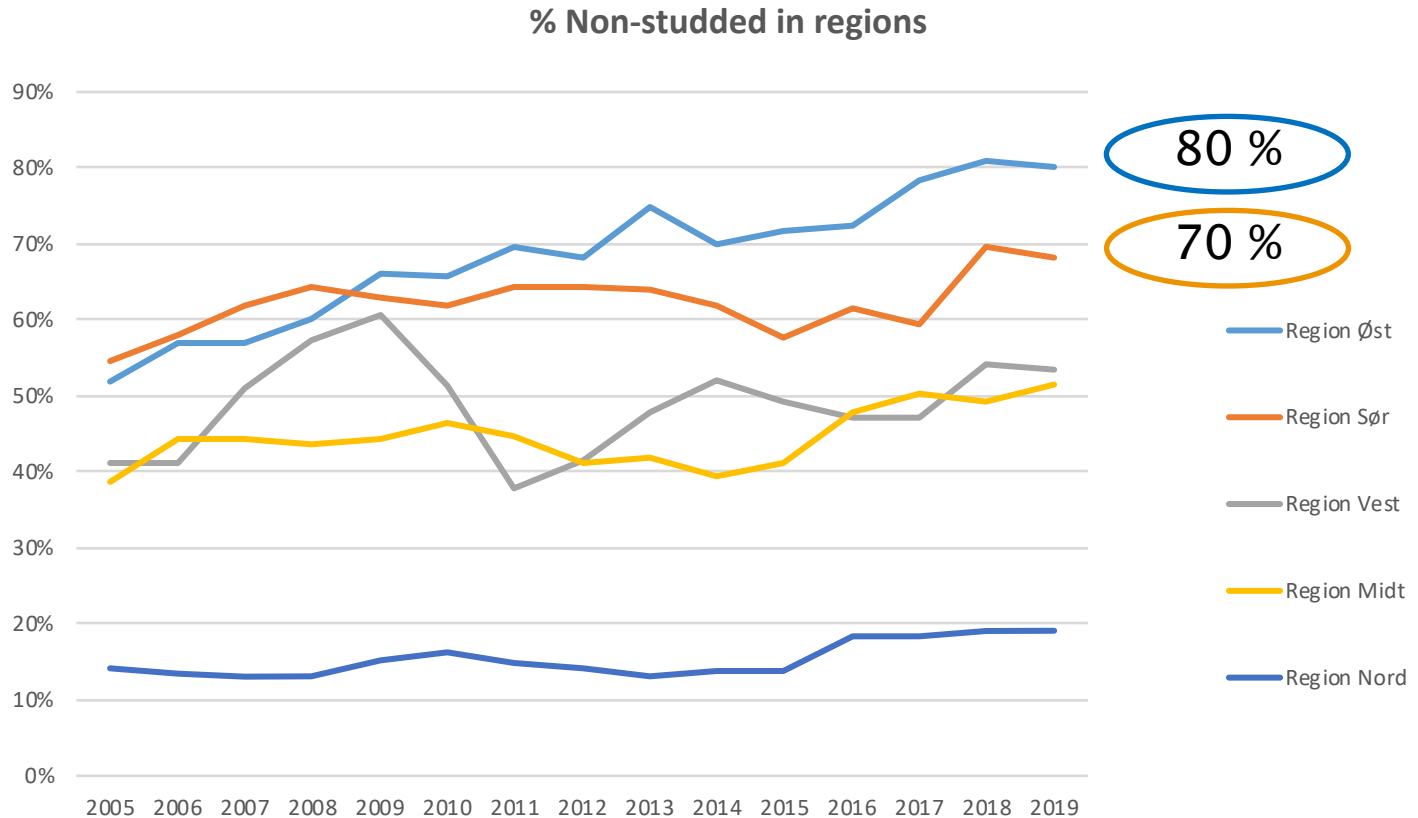
The effect of fee scheme





The Norwegian studded tyre fee scheme

Increase the proportion of non-studded tires

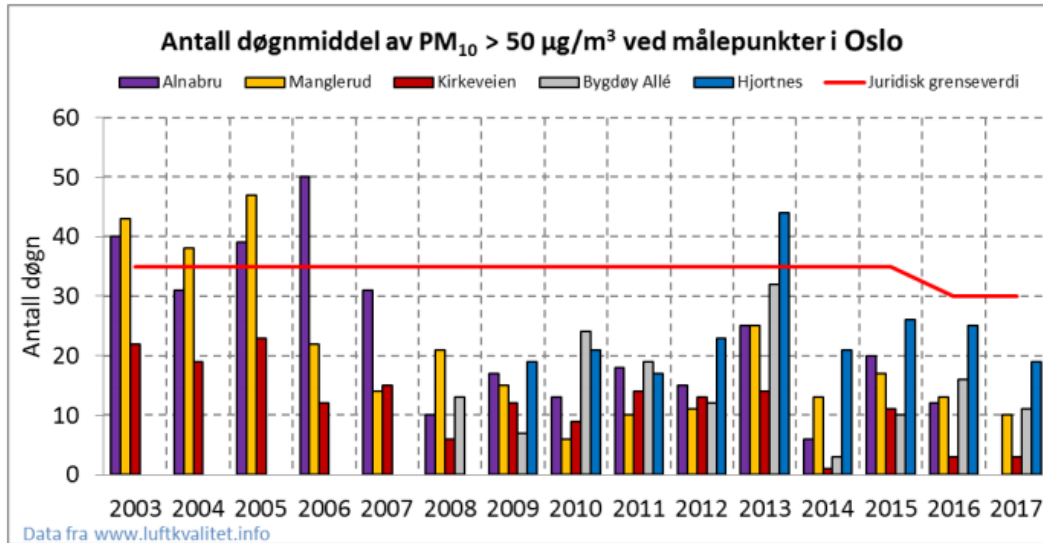




The Norwegian studded tyre fee scheme

Improved air quality – PM₁₀ – Oslo

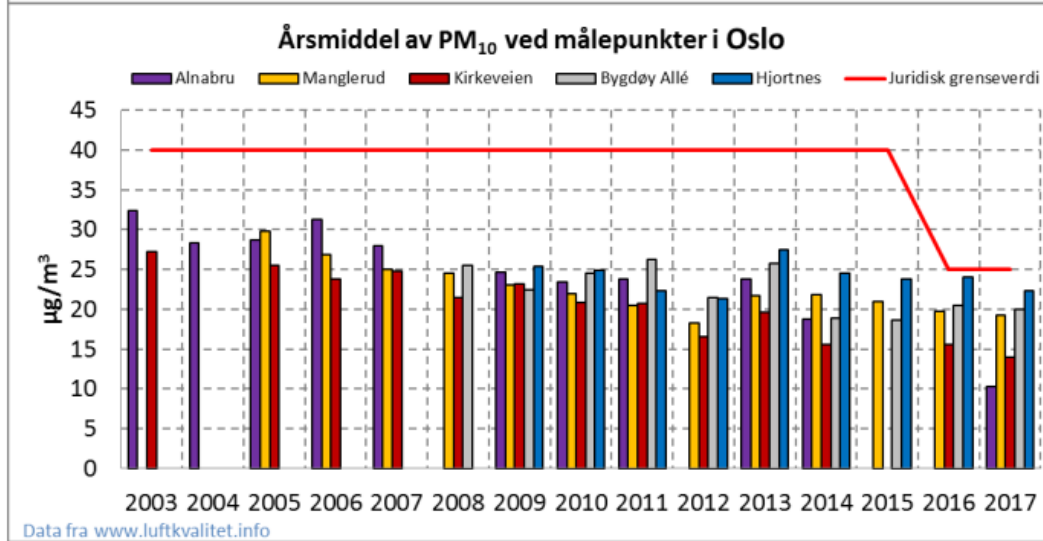
Number of days above 50 µg/m³



<http://www.luftkvalitet.info>

Historiske data

Annual level

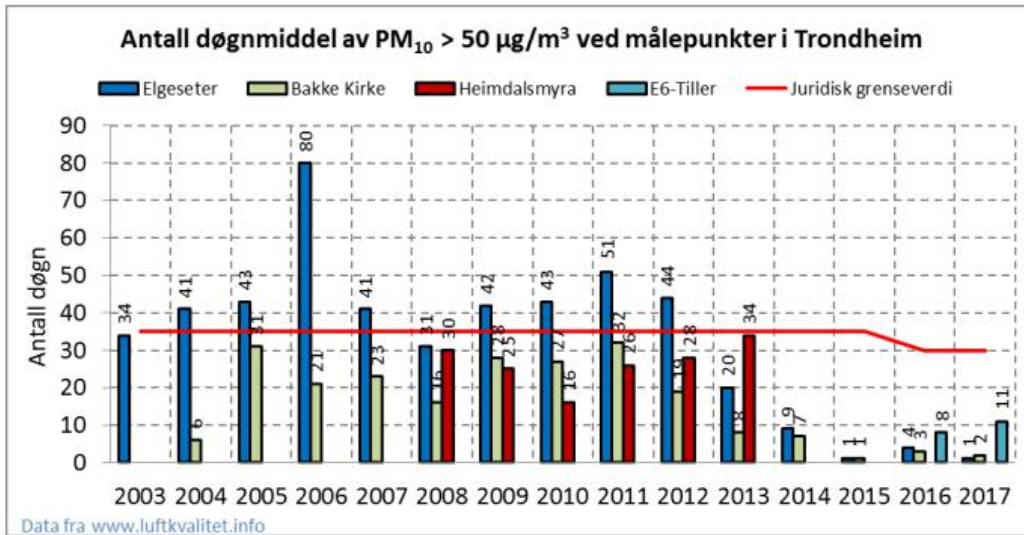




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Improved air quality – PM₁₀ – Trondheim

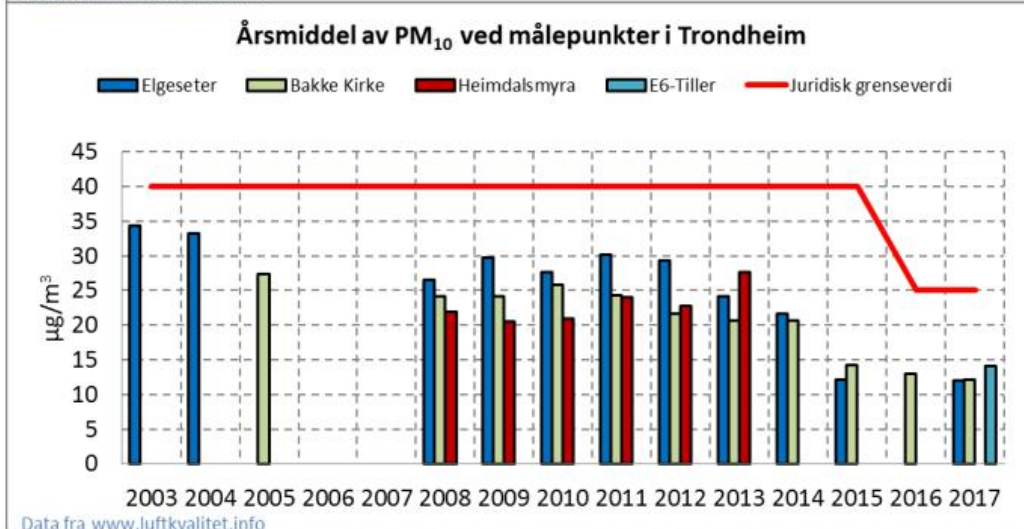
Number of days above 50 µg/m³



<http://www.luftkvalitet.info>

Historiske data

Annual level





The Norwegian studded tyre fee scheme

Income from the fee – 2018

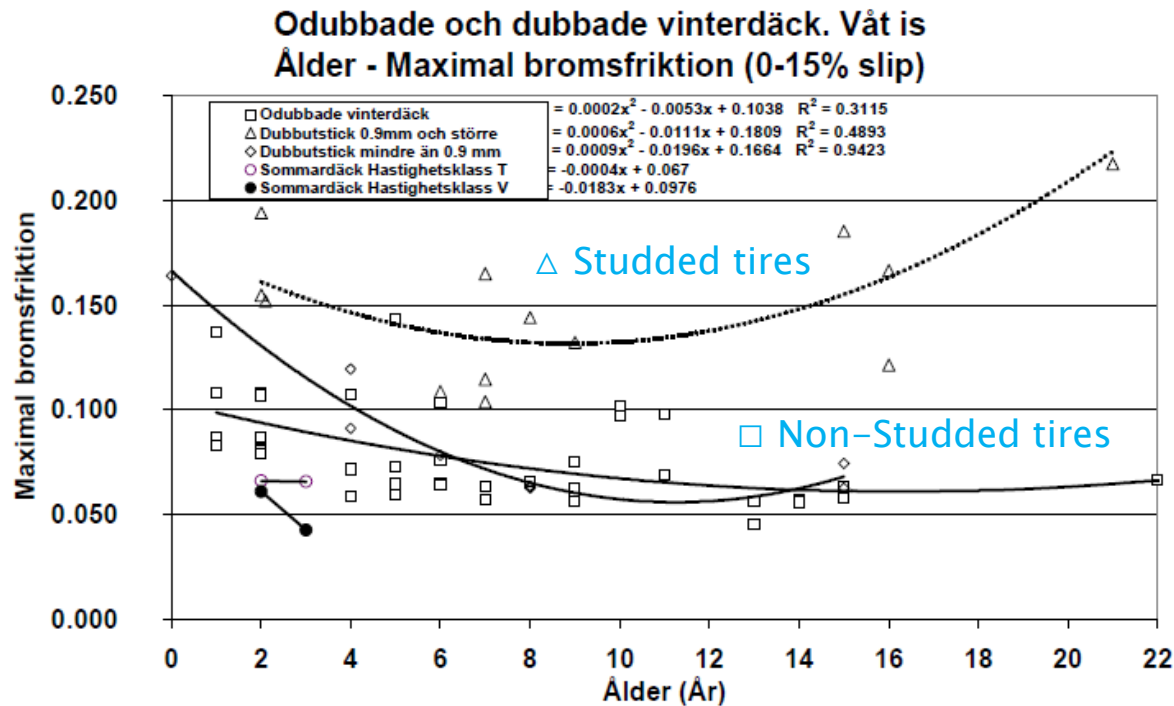
- Stavanger \approx 21 mill Nkr
- Trondheim \approx 18 mill Nkr
- Oslo \approx 35 mill Nkr

→ Founding the local winter maintenance



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Road safety



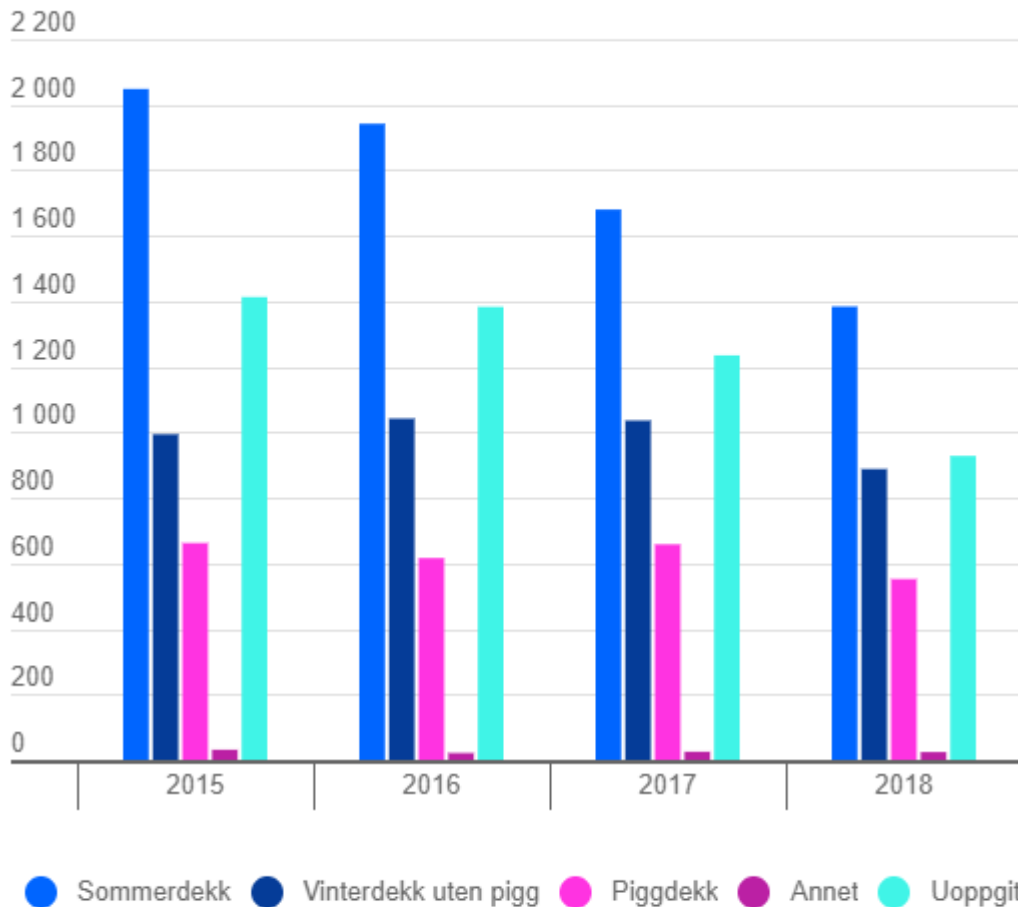
Studded tires have better friction than Non-studded tires on wet ice.



The Norwegian studded tyre fee scheme

Road safety

Vegtrafikkulykker med personskade, etter dekktype.
Kun personbiler.




Number of road traffic accidents involving personal injury, by tire type.

A higher proportion of non-studded tires give a higher number of accidents



The Norwegian studded tyre fee scheme

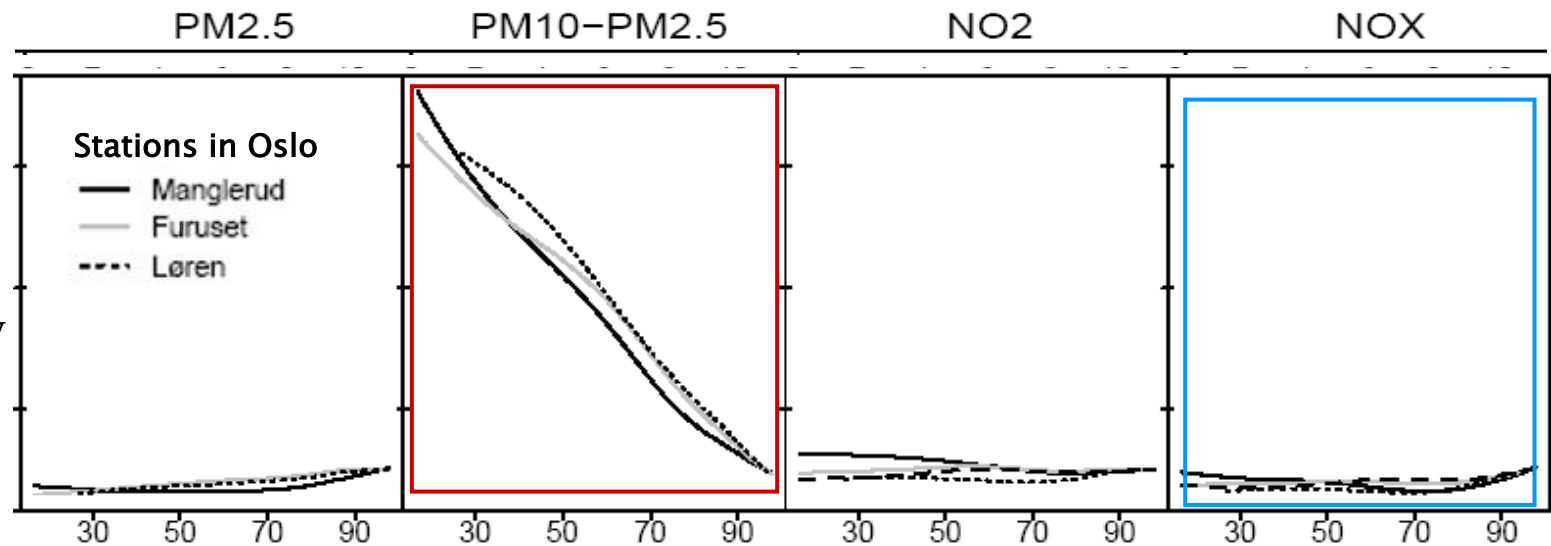
Other measures

- Dust binding with MgCl-salt
 - MgCl is hygroscopic and makes a two-valant-binding
 - Make 10 % of the see salt
- Sign reduced speed 
- The air quality warning system



The Norwegian studded tyre fee scheme

Dust binding with MgCl₂-salt

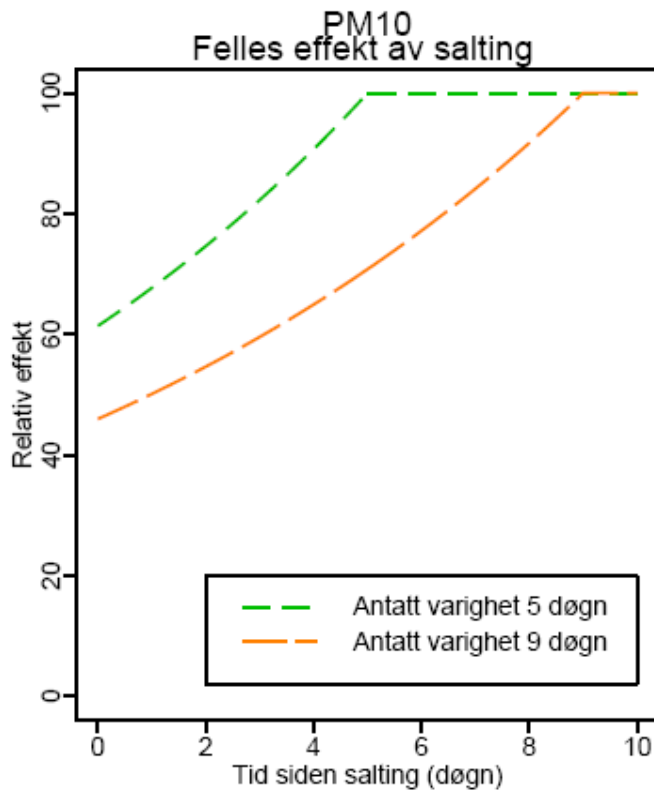


Ref: Norsk Regnesentral

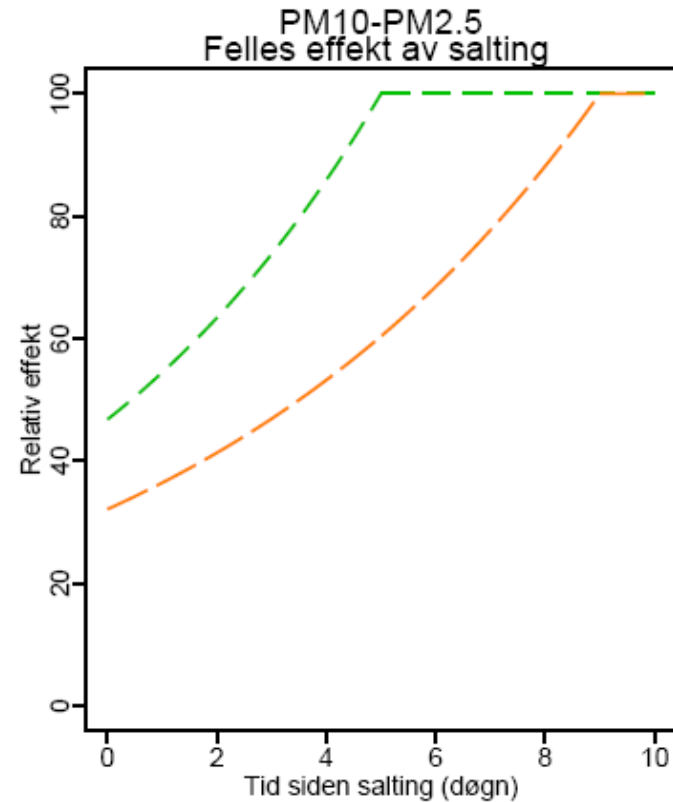


The Norwegian studded tyre fee scheme Dust binding with MgCl-salt

Strømsås Tunnel – Drammen



Days

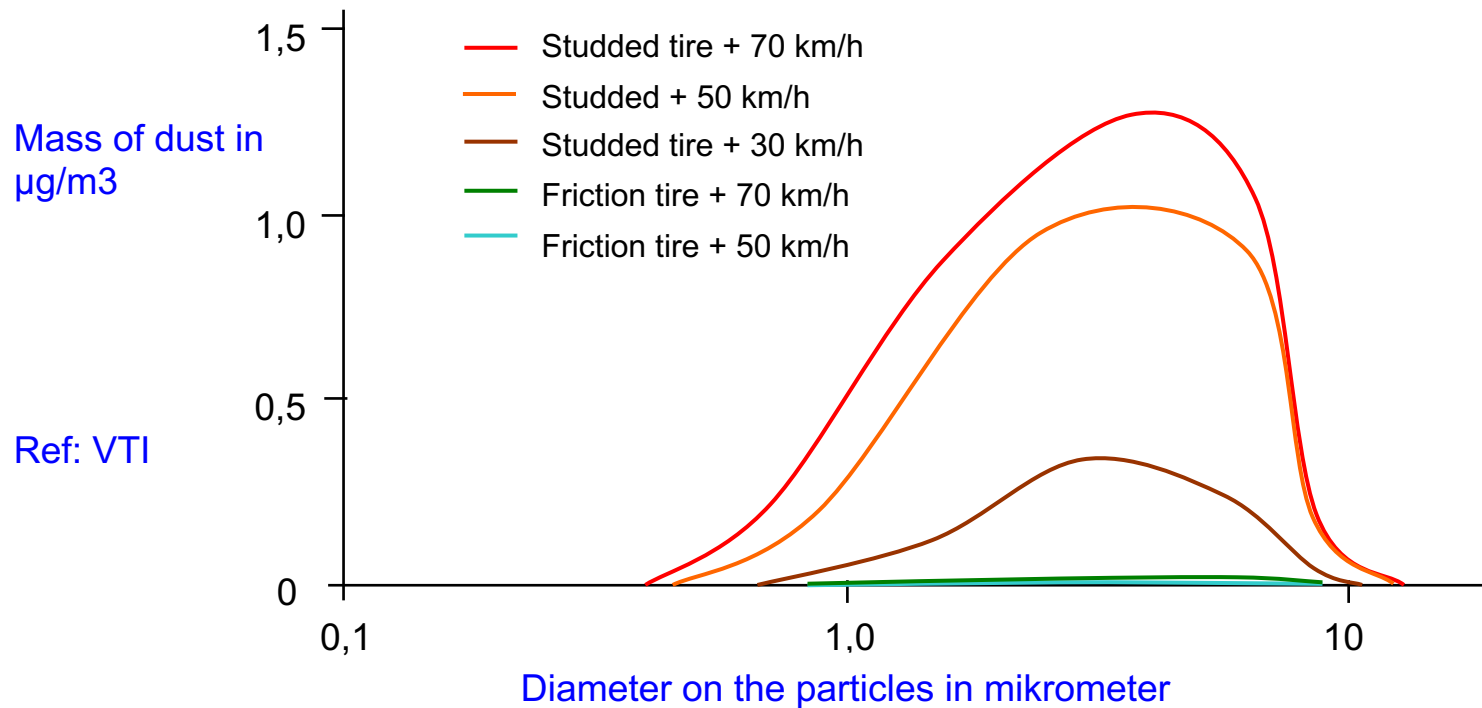


Days



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The frequency distribution of dust production from tires





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Sign reduced speed

Road 4 in Oslo in relation to the average on the main roads Kirkeveien, Løren and Manglerud

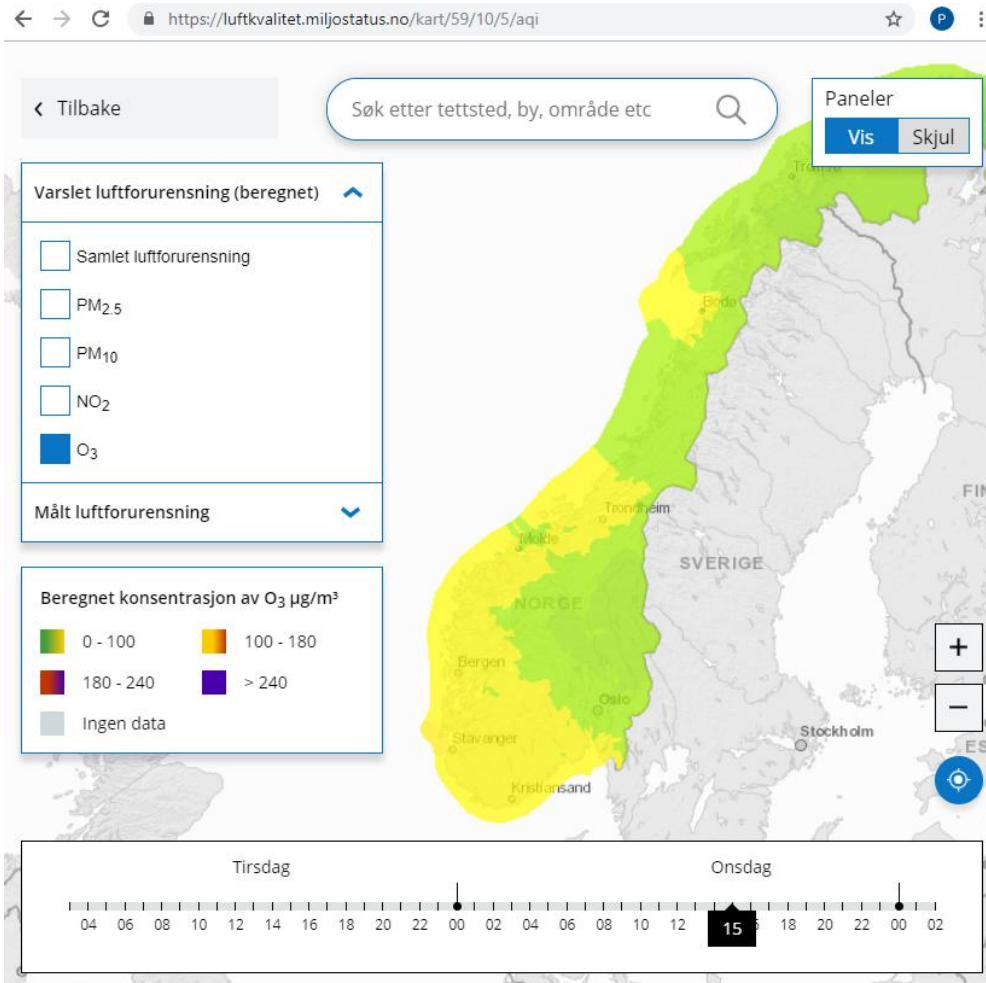
From 80 km/h to 60 km/h





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The air quality warning system



<https://luftkvalitet.miljostatus.no>

Luftforurensning nå

Moderat (enkelte steder)

På grunn av: O₃

Kilde: langtransportert (O₃)

Tirsdag: Lokalt ventes et moderat nivå, hovedsakelig i sterkt trafikkerte områder i ettermiddagsrushet og tidlig kveld. Ellers ventes stort sett lite forurenset

Oslo kommune

Onsdag: Det ventes stort sett lite forurenset luft. Langs hovedveiene ventes det et moderat forurensningsnivå fra veistøv i forbindelse med rushtidene.

Oslo kommune

Moderat helseisiko

Helseeffekter kan forekomme hos enkelte astmatikere og personer med andre luftveissykdommer eller alvorlige hjertekarsykdommer. Friske personer vil sannsynligvis ikke ha helseeffekter.

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